This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

Digitized by Google

3 2044 106 442 080

HARVARD UNIVERSITY HERBARIUM.
Ber
LLS
T-10
Bought

LIBRARY OF THE GRAY HERBARIUM
HARVARD UNIVERSITY

Digitized by Google

Digitized by Google

Digitized by Google

TORREYA

A Monthly Journal of Botanical Notes and News

JOHN TORRY, 1796–1873

EDITED FOR

THE TORREY BOTANICAL CLUB

BY

MARSHALL AVERY HOWE

Volume VI.

NEW YORK

1906

Digitized by Google

PRESS OF
THE NEW ERA PRINTING COMPANY
LANCASTER, PA.

Digitized by Google

THE TORREY BOTANICAL CLUB

OFFICERS FOR 1906

President,
HENRY H. RUSBY, M.D.

Vice Presidents,
EDWARD S. BURGESS, PH.D. LUCIEN M. UNDERWOOD, M.D.

Recording Secretary,
C. STUART GAGER, PH.D.
Botanical Garden, Bronx Park, New York City.

Corresponding Secretary,
JOHN K. SMALL, PH.D.
Botanical Garden, Bronx Park, New York City.

Editor,
JOHN HENDLEY BARNHART, A.M., M.D.
Tarrytown, N. Y.

Treasurer,
CARLTON C. CURTIS, PH.D.
Columbia University.

Associate Editors,
ALEX. W. EVANS, M.D., PH.D. DANIEL T. MACDOUGAL, PH.D.*
TRACY ELLIOT HAZEN, PH.D. WM. ALPHONSO MURRILL, PH.D.
MARSHALL A. HOWE, PH.D. HERBERT M. RICHARDS, S.D.
ANNA MURRAY VAIL.

Meetings the second Tuesday and last Wednesday of each month alternately at the American Museum of Natural History and the New York Botanical Garden.

PUBLICATIONS. Bulletin. Monthly, established 1870. Price $3.00 per year; single numbers 30 cents. Of former volumes only 24-32 can be supplied entire. Certain numbers of other volumes are available, and the completion of sets will be undertaken.

Memoirs. A series of technical papers published at irregular intervals, established 1889. Price $3.00 per volume.

Torreya. Monthly, established 1901. Price $1.00 per year.

All business correspondence relating to the above publications should be addressed to Carlton C. Curtis, Treasurer, Columbia University, New York City.

* Resigned January 31, 1906.

Digitized by Google

ERRATA, VOLUME 6.

Page 111, 13th line, *for* A. A. Crooke, *read* J. J. Crooke.

Page 112, 13th line, *for* Britton, *read* Greene.

Page 135, 2d and 17th lines from bottom, *for* Schrenck *read* Schrenk.

Page 232, 4th line from bottom, for *C. aristata*, read *Phlox aristata.*

Dates of Publication

No. 1,	for January.	Pages	1–20.	Issued January 25, 1906.
No. 2,	February.		21–40.	February 19, 1906.
No. 3,	March.		41–56.	March 16, 1906.
No. 4,	April.		57–80.	April 25, 1906.
No. 5,	May.		81–100.	May 23, 1906.
No. 6,	June.		101–132.	June 20, 1906.
No. 7,	July.		133–156.	July 25, 1906.
No. 8,	August.		157–180.	August 25, 1906.
No. 9,	September.		181–196.	September 27, 1906.
No. 10,	October.		197–216.	October 25, 1906.
No. 11,	November.		217–240.	November 26, 1906.
No. 12,	December.		241–272.	December 13, 1906.

Digitized by Google

RECEIVED.
JAN 27 1906

Vol. 6 January, 1906 No. 1

TORREYA

A MONTHLY JOURNAL OF BOTANICAL NOTES AND NEWS

EDITED FOR

THE TORREY BOTANICAL CLUB

BY

MARSHALL AVERY HOWE

JOHN TORREY, 1796–1873

CONTENTS

Polarity in the Weeping Willow: E. A. ANDREWS 1
Notes on some Southern Illinois Plants—III: H. A. GLEASON 5
Grayia or Eremosemium: P. A. RYDBERG 8
Rhus and its Allies: T. D. A. COCKERELL 11
Proceedings of the Club: MARSHALL A. HOWE 12
News Items 16

PUBLISHED FOR THE CLUB
AT 41 NORTH QUEEN STREET, LANCASTER, PA.
BY THE NEW ERA PRINTING COMPANY

Digitized by Google

THE TORREY BOTANICAL CLUB

OFFICERS FOR 1906

President,
HENRY H. RUSBY, M.D.

Vice-Presidents,
EDWARD S. BURGESS, PH.D. LUCIEN M. UNDERWOOD, PH.D.

Recording Secretary,
C. STUART GAGER, PH.D.
Botanical Garden, Bronx Park, New York City.

Corresponding Secretary,
JOHN K. SMALL, PH.D.
Botanical Garden, Bronx Park, New York City.

Editor,
JOHN HENDLEY BARNHART, A.M., M.D.
Tarrytown, N. Y.

Treasurer,
CARLTON C. CURTIS, PH.D.
Columbia University.

Associate Editors,
ALEX. W. EVANS, M.D., PH.D. DANIEL T. MACDOUGAL, PH.D.
TRACY ELLIOT HAZEN, PH.D. WM. ALPHONSO MURRILL, PH.D.
MARSHALL A. HOWE, PH.D. HERBERT M. RICHARDS, S.D.
ANNA MURRAY VAIL.

TORREYA is furnished to subscribers in the United States and Canada for one dollar per annum; single copies, fifteen cents. To subscribers elsewhere, five shillings, or the equivalent thereof. Postal or express money orders and drafts or personal checks on New York City banks are accepted in payment, but the rules of the New York Clearing House compel the request that ten cents be added to the amount of any other local checks that may be sent. Subscriptions are received only for full volumes, beginning with the January issue. Reprints will be furnished at cost prices. Subscriptions and remittances should be sent to TREASURER, TORREY BOTANICAL CLUB, 41 North Queen St., Lancaster, Pa., or Columbia University, New York City.

Matter for publication should be addressed to

MARSHALL A. HOWE
New York Botanical Garden
Bronx Park, New York City

Digitized by Google

Vol. 6 No. 1

TORREYA

January, 1906

POLARITY IN THE WEEPING WILLOW

By E. A. Andrews

The experiments of Vöchting showed marked polarity in the new growths from cut-off twigs of the osier willow when very young, but in older twigs and in some other species of willow less marked polarity. The following observations upon the older twigs of the weeping willow (*Salix babylonica*) show new growth of pieces without observed polarity. Being manifestly incomplete, they are published chiefly as suggestive of problems to be solved.

In October before the leaves had fallen, twigs 10–15 mm. thick and 30 cm. long were cut from a young weeping willow about ten feet high. The branches used were erect and not the pendent twigs. When these were put with one half in the water and the other in the air (not especially moist) they eventually formed roots in the water and leaf-buds in the air, whether the twigs were inverted or not. During the winter the leaf-buds elongated as branches 15 cm. long. The only leaves formed under water were from visible buds while in the air there were leaves formed in addition to those coming from visible buds. It was thought that the roots came out sooner from the basal ends in water than from the apical ends in water, but this may have been due to differences in temperature caused by one set of jars being nearer to the source of heat. Transplanted into earth, some lived several months, but both the inverted and the non-inverted twigs died.

In March and April, when the leaves were first showing green but had not yet expanded, twigs of the same small tree showed a marked ability to form roots from any part in water and leaves from any part in air, without difference between basal and apical

[No. 12, Vol. 5, of Torreya, comprising pages 207–233, was issued January 10, 1906.]

Digitized by Google

regions. Thus sticks 10–15 mm. thick and 60 cm. long were cut across into three and four pieces and the pieces of each tied in a bundle so that successive pieces of the same stick were alternately inverted and not inverted. Larger sticks 30 mm. thick and 90 cm. long were cut into pieces each 45 mm. long and smaller sticks 8 mm. thick and 60 cm. long were cut into pieces 30 cm. long. In each case the successive pieces were tied together side by side, one inverted the other not. In all cases the bundles standing upright in water with the upper half in the air showed within 48 hours roots growing in the water and leaves growing in the air, on all the pieces of sticks.

In those bundles of sticks cut across into *two* pieces the following combinations occurred. (1) The basal half-piece put out roots from its basal and leaves from its apical part while the apical half-piece put out leaves from its basal and roots from its apical part. (2) The basal half-piece made leaves from its basal and roots from its apical part while the apical half-piece made roots from its basal and leaves from its apical part. (3) The basal half-piece made leaves from its basal and roots from its apical part while the apical half-piece made leaves from its basal and roots from its apical part. In the first case the cut surfaces that used to join at the middle of the stick were side by side in the air; in the second case they were side by side in the water; and in the third case they were separated so that one was in the air and the other in the water.

The same response to air and water was shown again in a twig cut into basal, middle and apical pieces, which made roots from the basal and leaves from the apical part of the basal piece, leaves from the basal and roots from the apical part of the middle piece, and roots from the basal and leaves from the apical part of the apical piece. And when these three pieces were placed together again there were seen along the length of the twig: first some roots, a number of new side branches, another set of like branches, a second set of roots, a third set of branches and finally a third set of roots.

Even more striking appeared the succession of new growths upon a forked branch, when the pieces were restored to their nat-

Digitized by Google

ural sequence after having made new roots and shoots. Of the four pieces the basal made roots from its basal part and leaves from its apical part while the next piece, which was Y-shaped, made shoots from its basal part and roots from both its apical parts. Of the two terminal pieces, one made roots from its basal and shoots from its apical part while the other made shoots from its basal and roots from its apical part. In all cases roots arose in the water and shoots in the air.

The effect of water and of air was again shown in the case of a piece an inch and a half thick and nearly three feet long, which had put out roots from the basal part in water and shoots from the apical parts in air, but subsequently when so placed that water dripped upon its apex and ran down its entire length without accumulating at the base, put out new shoots amidst the basal roots and new roots amidst the apical shoots.

To see how very short lengths of pieces would behave, a few pieces were cut 32 mm. wide and from 8 to 65 mm. long. These were floated in shallow water, some base upward others apex upward. Those 65 mm. long made leaves in the air and roots in the water no matter which end was up. Some 17 mm. long made only leaves. One very short disk 32 mm. wide and 8 mm. deep put out one slight beginning of a shoot and of a root and here the root was above the shoot and toward the apex end. After many days these experiments were obscured by the drying out of the water.

Since roots were so readily made in the presence of water and shoots in the presence of air, some twigs were hung up in moist air after the method of Vöchting but with access of light and exclusion of free circulation of air. Hanging vertically, nearly, in moist air, these twigs might be expected to show any polarity they possessed, without the masking effects of the strong stimuli, water and air, applied in most of the above experiments at opposite poles.

Sticks 10 mm. thick and 60 cm. long were cut into three and four pieces, 15 to 20 cm. long and tied together in bundles so that successive pieces of each stick had base and apex downward alternately. The bundles were hung nearly vertically in a bell-

Digitized by Google

jar standing in water. In all the pieces roots came out all along the length and shoots all along the length. No difference was observed between the upper and the lower end of any stick whether it was inverted or not. With approximately equal conditions of air and moisture all along the sticks, the roots and shoots came out everywhere alike. They did not, however, come out from every part of the surface but from irregularly scattered spots widely distributed along the entire length and with no observed polar distribution. In a specific case of a twig cut into four pieces and suspended so that the original basal piece had its apex above, the next piece its apex below, the third its apex above, the fourth its apex below ; it was found that when the four pieces were placed together again in their original sequence they formed a long stick that bristled with short roots and with leaves along its entire length.

In these experiments in moist air, a callous tended to form over the cut surfaces, but no new growths were made from the cut surfaces nor from near the cut surfaces.

The roots came out from unseen lateral beginnings, while some of the leaf-bearing shoots came from visible buds and others from unseen beginnings.

In most cases the roots came out in groups of several close together and almost always in a row one above the other like fingers of a hand. While the roots could be seen for some days pushing out the green bark as conspicuous elevations before they broke through, there were many more elevations due to the swelling and bursting of lenticels. These changed a few hours after being put into water, or moist air, and finally exposed wax-like masses that made the surface of the twig thickly scattered over with white areas.

It would seem that these twigs of weeping willow contained very large numbers of lateral beginnings of shoots and of roots all along their lengths, or else have the power to form such beginnings, or else have both formed and facultative shoots and roots. When both water and air were present, large numbers of such organs grew forth all along cut-off twigs without observed reference to what was apical or basal. When, however, water

Digitized by Google

and relatively dry air were applied to opposite ends, a polar growth resulted with reference to these conditions only and not with reference to what had been basal or apical in the twig before separation from the tree. Apparently, possible leaves failed to be formed in water without much air and possible roots failed to be formed in air without much moisture.

In many of the above experiments twigs of an undetermined native willow were used in the bundles with weeping willow and without different results. The assumption that the weeping willow has acquired these innumerable centers of new growth as a means to produce new trees when branches happen to be broken off, may not be in the line of fundamental explanations to be sought for.

JOHNS HOPKINS UNIVERSITY,
BALTIMORE, MD.

NOTES ON SOME SOUTHERN ILLINOIS PLANTS.—III

BY H. A. GLEASON

The two species of *Jussiaea* which extend into Illinois, *J. diffusa* Forsk. and *J. decurrens* (Walt.) DC., are of characteristically austro-riparian habit, and are always found in swamps or along streams. The former species is well distributed along the Mississippi on muddy banks with a gradual slope, and is able to live farther down the bank towards the water than any other plant except *Eragrostis hypnoides*. It is nowhere common and has so far not been observed except along the river. *Jussiaea decurrens*, on the other hand, is not found on the Mississippi side, but only along the Ohio River and its tributaries. It is very abundant among the Tertiary hills in Massac and Pulaski counties, and along the small streams flowing southward through the Carboniferous and Devonian regions in Pope and Hardin counties. The limited amount of field work done north of the Ozark uplift has not as yet revealed its presence there.

Jussiaea decurrens is of some interest because of the development of aërenchyma upon its subaquatic roots. This peculiarity

Digitized by Google

is found in a number of species of the genus and has been described by Schenck and others. Two types of aërenchyma formation may be recognized, depending on whether the plant grows in water or soil. In the latter case, the roots branch irregularly and extend downward into the soil. Some or all of them below the level of the ground-water are surrounded with a relatively thin layer of aërenchyma, which is easily torn off by pulling up the plant. The portion of the roots above the ground-water level are not so covered, unless the level has recently lowered. The plant usually grows in sand close to streams, where the water level is seldom more than one or two decimeters below the surface. When, as sometimes occurs, it grows along small muddy ditches, but with the water level beyond the reach of the roots, no aërenchyma is formed. It may be found growing also in shallow running water to a depth of two decimeters, and it is in such places that the aërenchyma is most richly developed. A number of roots radiate in fairly straight lines from the base of the stem, either upon or just below the surface of the soil, and extend a meter or more in length. At intervals along them are given off straight unbranched pneumatophores which grow vertically toward the surface of the water. Their diameter is small, about one millimeter, but they are thickly covered with aërenchyma so that the whole has a size of four to six millimeters. Their growth stops when they touch the surface of the water, but apparently may be resumed if the water rises. When the water falls the tips float with the current on the surface. New ones are constantly growing up and a well-grown plant may be surrounded by fifty or more of various lengths and ages. There are fewer of them on the roots which grow into shallower water, and when, as frequently happens, the plant grows just at the margin of the water the root system will show both types. The necessity of some such aërating device is very apparent in stagnant water but hardly evident for running streams.

In 1899 Dr. MacDougal delivered a lecture at Wood's Holl* on the influence of inversions of temperature on the distribution

* Biological Lectures from the Marine Biological Laboratory of Wood's Holl 1899: 37–47. 1900.

Digitized by Google

of plants, in which he showed that the northernmost limits of southern species might be expected on hill tops, other things being equal, and the southernmost limits of northern species in the valleys. By inversion of temperature is meant the cooling at night of the lower layers of air by conduction to the soil, so that they reach a temperature some degrees below that of the upper strata. In a hilly or broken country this cold air settles by its greater weight into the valleys and the hill tops are covered with a constant supply of warmer air, with the result that their average temperature is higher and extremes less marked than in the valleys below.

There are a number of facts connected with plant distribution which help substantiate this claim, and it would seem that inversions of temperature are of considerable importance in such a broken country as the Ozark region of Southern Illinois. Bald Knob, in Union County, is a somewhat conical hill, rising over 150 meters above the surrounding valleys, and nearly 100 meters above the general level of the country. Its total height is just 300 meters. The farmer who cultivates what little arable land there is on its summit is able to market his tomatoes some days before his neighbors and never loses his crop by late frosts in the spring. The first frosts in autumn are also two to three weeks later than in the surrounding country. The general effect of this condition on the native flora is seen all through the southern end of the state, where the southern flora, two or three hundred species of which occur, is found almost exclusively either on the highest and driest uplands or in the swamps. The former situation is probably due to a temperature relation, the plants finding there a temperature more nearly like that farther south, which in a measure compensates for the unfavorable soil. The latter situation, in the swamps, is due to a water relation, which being near the optimum, permits the growth of southern species in spite of the lower temperatures.

The distribution of the yellow pine, *Pinus echinata*, which here reaches its northernmost limit in the Mississippi Valley, may be taken as an example. It is confined to a few steep-sided narrow-topped ridges from 80 to 120 meters high, where the influence

Digitized by Google

of temperature inversions must be very marked. More interesting, however, is the behavior of certain species normally members of the swamp associations, which here are near or at their northern limits. They are *Rhamnus caroliniana*, *Adelia acuminata*, *Celtis mississippiensis*, *Planera aquatica*, and *Ilex decidua*. Of these all but *Planera* are abundant in the swamps along the Mississippi River bayous, and to some extent also in the cypress swamps along the Ohio River. But they occur also on the dry rocky sides and tops of certain hills in Jackson County, 50 meters or more above the bottoms, where the soil is a thin clay and the forest cover very loose. The appearance of these plants associated with such xerophytes as *Ulmus alata*, *Sassafras Sassafras* and *Rhus aromatica*, and surrounded by tufts of *Agave virginica*, *Solidago Drummondii* and *Pellaea atropurpurea* is *bizarre* in the extreme. *Liquidambar styraciflua*, which in Illinois is confined to the southern part, shows indications of the same distribution. It is abundant on the driest uplands and in the swamps, but infrequent in the mesophytic midlands. The small cane, *Arundinaria tecta*, which is abundant in all the bottom-land swamps, wet woods and along streams, is also occasional in the moister upland woods and even in the thin but moist soil-deposits on ledges of shaded cliffs. It is worthy of note that in 1902 the canes in the latter habitat bloomed, though apparently no others did.

COLUMBIA UNIVERSITY.

GRAYIA OR EREMOSEMIUM

BY P. A. RYDBERG

For sixty years a very interesting and rather handsome Chenopodiaceous shrub had borne the name *Grayia*,[1] named in honor of the immortal Asa Gray. In December, 1900, Dr. E. L. Greene replaced it by *Eremosemium*[2] under the plea that the former "dates from 1841 only; while another genus by the same name was published a year or two earlier." It would have been well if Dr. Greene had stated by whom and where this other *Grayia*

[1] Hook. & Arn. Bot. Beechey Voy. 387. 1840.

[2] Greene, Pittonia 4: 225. D 1900.

Digitized by Google

was published, as it would have saved other botanists a good deal of trouble. Turning to the Kew Index, which by the way is not infallible, one finds four genera named *Grayia* (spelled in various ways). Of these, all are published later than 1841, except *Grayia* Arnott[1] and *Grayia* Hook. & Arn. Dr. Greene gives 1841 as the year of publication of tne latter. This date is given also on the title-page of the Botany of Captain Beechey's Voyage, but the work was published in parts, a fact which I think is not unknown to Dr. Greene. The part containing the description of *Grayia* Hook. & Arn. was issued before June 1840. It was reviewed in the *American Journal of Science*[2] among botanical literature received from April to June 1840. Another evidence that the date of publication was in the earlier half of 1840, instead of 1841, is that *Grayia* Hook. & Arn. was republished and illustrated in the third volume of Hooker's Icones,[3] which also was issued in the earlier part of 1840, early enough to be reviewed in the same number of the *American Journal of Science*.[4]

Hence, both *Grayia* Hook. &. Arn. and *Grayia* Arnott were published in 1840. Now the question arises, which was published earlier in the year? To me all the evidences indicate that *Grayia* Hook. & Arn. was the earlier, for Endlicher in his Genera Plantarum,[5] published in the later part of 1840, took up Hooker and Arnott's *Grayia*, but made no reference to the one published in Steudel's Nomenclator. I think that the burden of proof falls on Dr. Greene to show that *Grayia* Arnott was published earlier than that of Hooker and Arnott.

But not even this is necessary, for in my opinion *Grayia* Arnott of Steudel's Nomenclator has no standing whatever. On page 705, the place of publication given, we find:

"**Grayia** *Arnot.*

"*Zeylanica Arn.* Andropogon Grayia."

The word *Grayia* is printed in a type which Steudel used to

[1] Steud. Nomencl. 1: 705. 1840. [Ed. 2.]
[2] 39: 172. 1840.
[3] 3: *pl. 271.*
[4] *Loc. cit.*, 178.
[5] Page 1376.

Digitized by Google

indicate synonyms and he refers it to *Andropogon Grayia*. This latter is found on page 91. Here we read:

"**ANDROPOGON** Lin.

* * * * * *

"Grayia *Steud.* Zeylon.

"Grayia zeylanica. *Arnott.*

"Schizachyrium zeylanicum. *Nees* in *Wight.* hrb."

There is no earlier publication of *Andropogon Grayia* Steud., and *Schizachyrium zeylanicum* Nees was not published until 1855,[1] and even then only as a synonym under *Andropogon Pseudograya.*

Grayia Arnott in Steudel's Nomenclator is therefore given on page 91 as a synonym of a *nomen nudum*, which has another *nomen nudum* as a synonym, and on page 705 it is published as a *nomen nudum* with a *nomen nudum* as a synonym. Publications of this kind nobody now-a-days holds as valid.

What threw Dr. Greene off the track was perhaps the fact that Hooker and Arnott in their original publication of *Grayia* mentioned an earlier *Grayia*, referring to Wight's no. 2033. Wight's Catalogue was never printed. Duplicate copies were sent out I think in 1833. Even if this by somebody would be regarded as a publication, *Grayia elegans* Arnott (note: not *G. zeylanica*) is at best a *nomen nudum*, for opposite the number 2033, this name only is given. "*Graya elegans*" was afterwards properly published by Steudel,[2] who stated that in his Nomenclator he had confused it with *Schizachyrium zeylanicum.* *Grayia* of Steudel's Nomenclator was therefore intended to be the same as the unpublished *Grayia* of Wight's catalogue.

Until somebody can show me that there is some other *Grayia* published before 1840, I feel obliged to reject *Eremosemium* and shall be pleased to use for the two Chenopodiaceous shrubs of the Rocky Mountain regions that time-honored name *Grayia* Hook. & Arn.

New York Botanical Garden,
December, 1905.

[1] Steud. Syn. Pl. Glum. 1: 365. 1855.
[2] Steud., *loc. cit.*, 1: 119. 1855.

Digitized by Google

RHUS AND ITS ALLIES

By T. D. A. Cockerell

The old genus *Rhus* has at various times been divided to form new genera. Authors to-day do not agree in their treatment of it. *Rhus* and *Cotinus* are generally recognized, the former containing very diverse elements. Dr. Small (Flora of the Southeastern States) separates four genera, *Cotinus*, *Rhus*, *Metopium* and *Schmaltzia*. Dr. Greene (Leaflets, 1905) calls Dr. Small's "*Rhus*," *Toxicodendron*, while part of his *Schmaltzia* is considered to be true *Rhus*.

At first sight, the separation of so many genera may seem questionable. In Dr. Small's table we find "Drupe with a glabrous outer coat; stone ribbed," and "Drupe with a pubescent outer coat; stone smooth," given as differential characters. Why might not these differences arise all at once, by mutation, in different series? What proof is there that they imply a deep-seated and fundamental segregation of types? I have before me a little piece of *Ceanothus velutinus laevigatus*, T. & G., from Ward, Colo., with many fruits. These are 3-lobed as usual, *except one, which is regularly and completely 4-lobed.* Is not this as good a difference as "drupe pubescent," and have we two genera here on this one fragment of a single plant?

There are, however, other reasons for supporting the dismemberment of *Rhus*. Judge J. Henderson and Dr. F. Ramaley, of the University of Colorado, recently made an expedition to the famous Tertiary beds of Florissant, Colorado, and brought back a fine series of fossil plants. At Fossil Stump Hill, they obtained a beautiful specimen of *Rhus*, which is now before me. It is the *Rhus coriarioides* Lesquereux, Cret. and Tert. Floras, 193. 1883. It is more perfect than the single specimen known to Lesquereux, as the tips of most of the leaflets are preserved. It is so close to *Rhus hirta* that there is little on which to separate it, beyond the fact that the tips of the leaflets are more produced and tapering, the distance from the last serration to the apex being about 16 mm., in a leaflet 60 mm. long. So it appears that away back in the middle of Tertiary time the *hirta*-group (*Rhus* of Greene, part

Digitized by Google

of *Schmaltzia* of Small) was perfectly differentiated. More than this, true *Schmaltzia* is also represented at Florissant; the species being *Schmaltzia vexans* (*Rhus vexans*, Lesq., *l. c.*, 195); and, says Lesquereux, this also scarcely differs from living forms. The fact that these groups were wholly separated so long ago, indicates that Greene is right in regarding them as different genera, and that Dr. Small should not be followed in uniting them under *Schmaltzia*. The Florissant flora also contains a *Cotinus*, namely *Cotinus fraterna* (*Rhus fraterna*, Lesq., *l. c.*, 192), closely allied to the *Cotinus Palaeocotinus* (*Rhus Palaeocotinus* Saporta) and *C. cotinus*, of Europe, the first being fossil, the other living.

When we consider the transformations undergone by the vertebrates since these venerable plants flourished, we cannot help feeling impressed with the permanence of types existing among not merely the lower plants, but the higher as well. It would seem that in estimating genera, such facts should count for something; and we should not be guided quite so much by the presence of conspicuous outward marks.

BOULDER, COLORADO.

PROCEEDINGS OF THE CLUB

NOVEMBER 29, 1905

This meeting was held at the New York Botanical Garden, with Vice-president Underwood in the chair. Twenty persons were present.

Dr. D. S. Martin exhibited specimens of glassy cinders formed by the burning of masses of rice-hulls near Charleston, South Carolina, illustrating in a striking manner the presence of silica in these hulls.

The announced paper of the afternoon was by Dr. N. L. Britton, under the title of "The North American Cactaceae." The speaker remarked that the Cactaceae of North America were being carefully studied by himself in coöperation with Dr. J. N. Rose, of Washington, in anticipation of preparing a systematic account of this group for the "North American Flora." The Mexican forms have been extensively collected by Dr. Rose and

Digitized by Google

are being kept under cultivation in Washington and New York. Numerous species from Arizona, New Mexico, Lower California and the West Indies have been secured by expeditions sent out by the New York Botanical Garden and now are under cultivation in New York. Herbarium material is, as a rule, peculiarly inadequate to a proper appreciation of the relationships of the members of this family and it is hoped soon to have all of the North American species under observation in the living state. Herbarium specimens are being supplemented by photographs and by material preserved in fluids.

The most recent of the more important papers on the classification of the Cactaceae is one by Berger, entitled "A Systematic Revision of the Genus *Cereus* Mill." and published in the Sixteenth Report of the Missouri Botanical Garden (1905). This paper has been based chiefly on the studies made in Sir Thomas Hanbury's famous gardens in Italy, and gives much importance to characters of flowers and fruit, characters which have been largely ignored in previous schemes of classification because unknown. The genus *Cereus* is divided into eighteen subgenera by Berger. The studies of the speaker and of Dr. Rose indicate that both in the old genus *Cereus* and in other groups of the cactus family, well-marked differential characters of flower and fruit are coördinated with those of the stem in such a way as to make the recognition of several new genera natural and convenient. After these introductory remarks, the meeting was adjourned to the propagating houses of the Garden, where numerous living specimens of Cactaceae were demonstrated and commented upon. Of the genus *Cereus* in the current sense, various types representing subgenera or possible generic segregates were discussed. Among these were *Cereus peruvianus*, the proper type of the genus *Cereus;* species of the *Pilocereus* group, with which the older *Cephalocereus* is historically identical; *Cereus Schottii* of Berger's subgenus *Lophocereus; Cereus geometrizans*, representing Console's genus *Myrtillocactus; Cereus Pringlei* of Berger's group *Pachycereus; Cereus sonorensis*, representing *Stenocereus*, also of Berger; *Cereus triangularis*, a species much cultivated in the West Indies and southern Florida,

Digitized by Google

with large, beautiful nocturnal flowers, a member of Berger's subgenus *Hylocereus; Cereus grandiflorus*, the best-known night-bloomer, belonging in Berger's subsection *Selenicereus;* the curious *Cereus Greggii* with slender stem and very large tuberous subterranean part, representing the subsection *Peniocereus* of Berger; the Central American *Cereus baxaniensis* of the group *Acanthocereus;* the Costa Rican *Cereus Gonzalezii*, of Berger's subgenus *Leptocereus;* and also representatives of Engelmann's subgenus *Echinocereus*. Other specimens were exhibited to illustrate the genera *Phyllocactus*, *Epiphyllum*, *Cactus*, *Echinocactus*, *Melocactus*, *Ariocarpus*, *Pelecyphora*, *Rhipsalis*, *Opuntia*, *Nopalea*, and the curious *Pereskia*, with its leafy, vine-like or shrubby stems.

Adjournment followed.

MARSHALL A. HOWE,
Secretary pro tem.

DECEMBER 12, 1905

This meeting was held at the American Museum of Natural History, with President Rusby in the chair. Thirty-four persons were present.

The following three persons were elected to active membership: Dr. Manuel Gomez de la Maza, Director del Jardin Botanico, Havana, Cuba; Mr. Henry Allan Gleason, 211 West 108th St., New York City; Mr. Stafford C. Edwards, New Brighton, Staten Island.

The announced paper of the evening was by Dr. Henry Kraemer and was entitled "Some Studies on Color in Plants and the artificial Coloring of Flowers." The subject of color in plants was considered first from a morphological and chemical point of view, and the speaker performed various illustrative chemical experiments involving changes of color in liquid media. The results of numerous experiments on the control of color in living plants and on the artificial coloring of cut flowers were given. Dr. Kraemer's paper will be published in full in the *Bulletin* of the Club. The following is his abstract of the more important results of his observations and experiments:

"1. Unorganized or cell-sap color substances are distributed

Digitized by Google

usually in largest amount at the termini of the branches, as in flowers and terminal leaves, or in roots, or in both tops and roots. Their occurrence in those portions of the plant, which are young and growing, points to the conclusion that they are not to be disregarded in the study of metabolic processes. Goebel holds a similar view. He says that it is 'very probable that the feature of color which so often appears when the propagative organs are being brought forth has some connection with definite metabolic processes, although till now we cannot recognize what these are.'

"2. The distribution of the so-called flower color substances in other parts of the plant than the flower also points to the same conclusion, and that the part which they play in attracting insects to flowers, is, if indeed they have any function of this kind, incidental rather than fundamental. The fact that certain colored flowers, as in the spruce and red maple of early spring, are pollinated by the wind, would tend to confirm this view. The food in the nectar and pollen are no doubt sufficient attraction for insects and other animals.

"3. The occurrence of chromoplastids in a reserve organ, as in the tuberous root of the carrot, and the similar occurrence of chromoplastids and of reserve starch in the petals of the buttercup, lead to the inference that the petal of the buttercup, like the root of the carrot, has the function of storing nutrient material. In each case cells containing chromoplasts rich in nitrogenous substances are associated with cells containing reserve materials. In the case of the carrot the reserve materials are utilized by the plant of the second year, and in the case of the buttercup they are utilized in the development of the akene.

"4. The feeding of plants with chemicals for the purpose of controlling color, as certain iron, aluminum, potassium and other salts as well as certain organic acids, has not so far, in the author's experiments with carnations, roses and violets produced any marked changes in the colors of the flowers, only some slight effects being noted which might be attributed to other causes. Knowing that plants have a certain individuality and certain inherent qualties or tendencies, other than negative results could hardly be expected. On the other hand, the plant

Digitized by Google

is a rather plastic organism, and for this reason experiments along the line indicated are more or less justified.

"5. Experiments in supplying plants and cut flowers with vegetable coloring matters and aniline dyes showed that none of the vegetable color substances were taken up and that only a comparatively few of the aniline dyes would color flowers. The fact that of thousands of dyes or color substances, only a few are carried as high as the flower, would tend to show that only certain chemicals or substances would be taken up by the plant, and thus exert an influence on the coloring matter in the flower. If such profound changes occur in plants as are provided by the mutation theory, is it too much to suppose that certain definite changes might be produced by means of which we have knowledge or control?"

Dr. Kraemer's remarks were illustrated by a hundred or more freshly cut flowers such as carnations, roses, hyacinths, and callas, which had been artificially colored in the few hours preceding the demonstration by placing the stalks of the flowers in solutions of certain dyes. Numerous dried specimens of artifically colored flowers of various plants were also exhibited.

Dr. Rusby showed fresh fruits of the so-called "tree-tomato," a species of *Cyphomandra* native to South America.

Adjournment followed.

MARSHALL A. HOWE,
Secretary pro tem.

NEWS ITEMS

Dr. George T. Moore will have charge of the botanical department of the Marine Biological Laboratory at Woods Hole, Massachusetts, during the coming summer.

It is stated in a recent number of *Science* that Professor Roland Thaxter, of Harvard University, has a year's leave of absence, during which he will make botanical collections in South America.

Professor J. C. Arthur and Mr. Frank D. Kern of Purdue University, Lafayette, Indiana, are spending three weeks or more at the New York Botanical Garden, engaged in studies on the North American Uredinales.

Digitized by Google

Dr. Jesse M. Greenman, assistant curator of the department of botany of the Field Columbian Museum, sailed from New York for Yucatan on January 11 to collect and study the phanerogamic flora of that region.

Dr. Burton E. Livingston, recently of the Bureau of Soils, U. S. Department of Agriculture, has accepted a position with the department of botanical research of the Carnegie Institution and began his new work on January 1.

Miss Alice A. Knox, for several months assistant in the laboratories of the New York Botanical Garden, becomes assistant in the department of botanical research of the Carnegie Institution on February 1, remaining in residence at the Botanical Garden.

The *Bryologist*, with the January issue, at the beginning of its ninth volume, passes under the editorship of Mrs. Annie Morrill Smith, who is assisted by Dr. A. J. Grout (mosses), Mr. G. K. Merrill (lichens), and Miss Caroline Coventry Haynes (hepatics).

Sir William Thiselton-Dyer has resigned the directorship of the Royal Botanic Gardens at Kew, a positition which he had held since 1885. His successor is Lieutenant-Colonel David Prain, who has been director of the Botanical Survey of India since 1898.

Professor P. H. Rolfs, now in charge of the subtropical laboratory of the U. S. Department of Agriculture at Miami, Florida, has been elected director and horticulturist of the Florida Agricultural Experiment Station at Lake City and will take up his new duties on February 1. Mr. Ernst A. Bessey is Professor Rolfs' successor at Miami.

At the meeting of the American Mycological Society held in New Orleans January 1, Vice-president F. S. Earle occupied the chair in the absence of President Charles H. Peck. Twelve papers were presented. The president, vice-president, and secretary-treasurer (C. L. Shear) were continued in office as a committee to complete details of organization in connection with the proposed union with other botanical societies.

Dr. F. Börgesen, of the Botanical Museum of Copenhagen, reached St. Thomas, West Indies, about the middle of December

Digitized by Google

for his third botanical exploration of the Danish West Indian islands. He is giving special attention to the collection of marine algæ with the assistance of Danish men-of-war for dredging operations. Dr. Börgesen hopes to visit the United States on his return voyage in April.

New appointments and changes of title in the staff of the New York Botanical Garden for the year 1906 include the following, the appointments dating from January 1, unless otherwise indicated: First assistant, William A. Murrill; head curator of the museums and herbarium, John K. Small; curator of the museum, P. A. Rydberg, Arthur Hollick, Marshall A. Howe; director of the laboratories, C. Stuart Gager (February 1); assistant curator, R. S. Williams, C. B. Robinson (July 1); administrative assistant, Percy Wilson.

The Bureau of Government Laboratories at Manila has been combined with the Mining Bureau of the Philippine Government and the united institutions are now to be known as the Bureau of Science. The results of its researches will be published in a new journal to be called "The Philippine Journal of Science." Dr. E. B. Copeland and Mr. A. D. E. Elmer have been transferred from the Bureau of Science to the educational department and Dr. H. N. Whitford goes to the Forestry Bureau.

Julien Reverchon, professor of botany in the Baylor College of Medicine and Pharmacy, Dallas, Texas, and well known as a student and collector of Texan plants, died near Dallas on December 30, 1905. He was born near Lyons, France, August 3, 1834, coming to America and settling in Texas in 1855. He was a correspondent of Gray, Engelmann, Sereno Watson, and many later American botanists, and had contributed papers to the *Botanical Gazette*, *Garden and Forest*, and the *Fern Bulletin*. He is said to have left a collection of over 20,000 specimens of Texan plants.

The American Association for the Advancement of Science held its fifty-fifth annual meeting in New Orleans, December, 29, 1905, to January 4, 1906. The address of Professor W. G. Farlow, the retiring president of the Association was entitled

Digitized by Google

"The Popular Conception of the Scientific Man at the Present Day." This address was published in full in *Science* for January 5. Papers represented by thirteen titles were offered before Section G (botany) in addition to those read in joint session with the American Mycological Society. In the absence of Dr. Erwin F. Smith, the chair was occupied by the retiring chairman, Professor B. L. Robinson, whose vice-presidential address was upon "The Generic Concept in the Classification of the Flowering Plants." For 1906, Dr. D. T. MacDougal was elected chairman of Section G, Professor F. E. Lloyd continuing to serve as secretary.

The Botanical Society of America held its twelfth annual meeting at New Orleans, January 1–4, 1906. Vice-president E. A. Burt acted as chairman in absence of President R. A. Harper. Past-president Frederick V. Coville was absent and his announced address on "Botanical Explorations in Alaska" was accordingly omitted. For the ensuing year, Professor F. S. Earle was elected president; Professor William Trelease, secretary; and Dr. Arthur Hollick, treasurer. Grants were approved as follows: $200 to Professor E. C. Jeffrey to aid in collecting lignitic fossils of eastern North America and in investigating their internal structure; $150 to Dr. C. J. Chamberlain for the continuation of his studies on the spermatogenesis, oögenesis, and fertilization of *Dioön* and *Ceratozamia;* and $100 to Professor J. C. Arthur for the continuation of investigations on the North American Uredinales.

The Society for Plant Morphology and Physiology held its ninth annual meeting at the University of Michigan, Ann Arbor, Mich., along with the affiliated scientific societies, on December 27–29, 1905. Twelve papers were presented in full. The meeting was practically a joint one with the Association of Central Botanists, the latter association having the afternoon, and the former the morning, programs. The Society voted to adopt the plan for the union of the American botanical societies and to unite with the Botanical Society of America and the American Mycological Society in case the proposed plan of union should be approved by those organizations. In view of the possible union no new officers were chosen, but the officers of last year were re-

Digitized by Google

elected to serve until the union is effected or until the next annual meeting. These officers are president, Professor E. C. Jeffrey; vice-president, Dr. C. O. Townsend; secretary-treasurer, Professor W. F. Ganong.

Mr. Job Bicknell Ellis, for years one of the leading systematic mycologists of America, died in Newfield, New Jersey, on December 30, 1905. He was born in Potsdam, New York, January 21, 1829. An interesting biographical sketch of Mr. Ellis, written by Mr. F. W. Anderson, was published in the *Botanical Gazette* for November, 1890. From 1880 until death severed the partnership in September, 1904, he was associated with Benjamin M. Everhart in the publication of descriptions of new American fungi and in issuing widely known sets of exsiccati of American fungi under the titles "North American Fungi" and "Fungi Columbiani," though the practical direction of the latter series has been assumed in recent years by younger workers in the mycologic field. Mr. Ellis' personal herbarium, including the types of numerous species, was purchased several years ago by the New York Botanical Garden and a large part of his library is also in possession of the same institution.

The Vermont Botanical Club held its eleventh annual winter meeting at the University of Vermont, Burlington, January 17 and 18. Among the papers read were those by President Ezra Brainerd treating of variations in violets, by C. G. Pringle in a reminiscent vein, by W. W. Eggleston on the Crataegus problems, and by Miss Nancy Darling on the flora of Hartland, Vt. In the latter was reported the finding of *Dryopteris Filix-mas*, which is a noteworthy addition to the flora not only of Vermont but of New England as well. The next field meeting is to be held about July 1 on Mt. Mansfield, when it is hoped a number of visiting botanists from other New England States and New York may meet with the local members. It is decided to publish an annual bulletin, of which the first number may be expected next April. The officers elected are: President, Ezra Brainerd; vice-president, C. G. Pringle; treasurer, Mrs. N. F. Flynn; secretary, L. R. Jones.

Digitized by Google

Digitized by Google

OTHER PUBLICATIONS

OF THE

TORREY BOTANICAL CLUB

---

(1) BULLETIN

A monthly journal devoted to general botany, established 1870. Vol. 32, published in 1905, contained 691 pages of text and 29 full-page plates. Price $3.00 per annum. For Europe, 14 shillings. Dulau & Co., 37 Soho Square, London, are agents for England.

Of former volumes, only 2, 3, 5, 13, 20, 21, and 24–31 can be supplied entire; certain numbers of other volumes are available, but the entire stock of some numbers has been reserved for the completion of sets. Yearly volumes 2, 3, 5, one dollar each. Vols. 20, 21, 24 are furnished at the published price of two dollars each; Vols. 28–32, three dollars each.

Single copies (30 cts.) will be furnished only when not breaking complete volumes.

(2) MEMOIRS

The MEMOIRS, established 1889, are published at irregular intervals. Volumes 1–11 are now completed and No. 1 of Vol. 12 has been issued. The subscription price is fixed at $3.00 per volume in advance. The numbers can also be purchased singly. A list of titles of the individual papers and of prices will be furnished on application.

(3) **The Preliminary Catalogue of Anthophyta and Pteridophyta** reported as growing within one hundred miles of New York, 1888. Price, $1.00.

Correspondence relating to the above publications should be addressed to

THE TORREY BOTANICAL CLUB
Columbia University
NEW YORK CITY

Digitized by Google

RECEIVED
JUL 27 1906

Vol. 6 July, 1906 No. 7

TORREYA

A MONTHLY JOURNAL OF BOTANICAL NOTES AND NEWS

EDITED FOR

THE TORREY BOTANICAL CLUB

BY

MARSHALL AVERY HOWE

JOHN TORREY, 1796–1873

CONTENTS

A Historical Sketch of the Development of Botany in New York City (*concluded*): HENRY H. RUSBY 133
Doctor Torrey and Downingia: EDWARD L. GREENE 145
Two new Dewberries of the Hispidus Group: W. H. BLANCHARD 147
Shorter Notes
Galactia Odonia Griseb.: N. L. BRITTON 149
A new southern Convolvulus: HOMER D. HOUSE 149
Reviews
De Vries' Species and Varieties, second Edition: GEORGE HARRISON SHULL. 150
Pfeffer's Physiology of Plants: C. STUART GAGER 151
Proceedings of the Club: C. STUART GAGER 153
News Items 155

PUBLISHED FOR THE CLUB
AT 41 NORTH QUEEN STREET, LANCASTER, PA.
BY THE NEW ERA PRINTING COMPANY

Digitized by Google

THE TORREY BOTANICAL CLUB

OFFICERS FOR 1906

President,
HENRY H. RUSBY, M.D.

Vice-Presidents,
EDWARD S. BURGESS, PH.D. LUCIEN M. UNDERWOOD, PH.D., LL.D.

Recording Secretary,
C. STUART GAGER, PH.D.
Botanical Garden, Bronx Park, New York City.

Corresponding Secretary,
JOHN K. SMALL, PH.D.
Botanical Garden, Bronx Park, New York City

Editor,
JOHN HENDLEY BARNHART, A.M., M.D.
Tarrytown, N. Y.

Treasurer,
CARLTON C. CURTIS, PH.D.
Columbia University.

Associate Editors,
ALEX. W. EVANS, M.D., PH.D.
TRACY ELLIOT HAZEN, PH.D.
MARSHALL A. HOWE, PH.D.
WM. ALPHONSO MURRILL, PH.D.
HERBERT M. RICHARDS, S.D.
ANNA MURRAY VAIL.

TORREYA is furnished to subscribers in the United States and Canada for one dollar per annum; single copies, fifteen cents. To subscribers elsewhere, five shillings, or the equivalent thereof. Postal or express money orders and drafts or personal checks on New York City banks are accepted in payment, but the rules of the New York Clearing House compel the request that ten cents be added to the amount of any other local checks that may be sent. Subscriptions are received only for full volumes, beginning with the January issue. Reprints will be furnished at cost prices. Subscriptions and remittances should be sent to TREASURER, TORREY BOTANICAL CLUB, 41 North Queen St., Lancaster, Pa., or Columbia University, New York City.

Matter for publication should be addressed to

MARSHALL A. HOWE
New York Botanical Garden
Bronx Park, New York City

Digitized by Google

Vol. 6 No. 7

TORREYA

July, 1906

A HISTORICAL SKETCH OF THE DEVELOPMENT OF BOTANY IN NEW YORK CITY

By Henry H. Rusby

(Continued from page 111)

Dr. Thurber, our first president, was characterized by profound conscientiousness and great determination. He began life as a pharmacist, in Providence, and developed a strong leaning toward chemistry, of which subject he became a teacher. His love of botany grew out of his study of drugs. In 1850 he went as botanist, quartermaster and commissary to the Mexican Boundary Commission, the botanical results of which were published by Torrey in 1859. He received the degree of A.M. from Brown University, and the honorary degree of M.D. from the University Medical College, of this city. He was in the U. S. Assay Office for two years and left from motives of honor. He was at various times a teacher in Cooper Union, the New York College of Pharmacy and Michigan Agricultural College, and was president of several horticultural societies and of this Club until 1880. For twenty-two years he was editor of the *American Agriculturist*, in which capacity he exerted an influence over the character of young people, in the agricultural sections of the country, that was and is of great national importance. His most important contribution to botanical work was perhaps the maintenance of a botanical garden at Passaic, New Jersey, in close relations with that of Harvard. His private fortunes were melancholy. Captured by the whirl of speculation in real estate that followed the civil war, he purchased land at an excessive price, and spent the rest of his life in a painful struggle honorably to discharge his financial obligations.

[No. 6, Vol. 6, of Torreya, comprising pages 101–132, was issued June 20, 1906.]

Digitized by Google

Mr. Wm. H. Leggett, our editor until near the time of his death in 1882, was a distinguished and successful educator, maintaining a private school in the upper part of the city. He was described as a "profound classical scholar," making a specialty of Greek. Notwithstanding this predilection, he managed to perform his botanical work in a most creditable manner, and exerted a persuasive influence in interesting the young in this study. It must not be overlooked that in founding our *Bulletin* he assumed the financial responsibility for its success.

Professor Alphonso Wood will be ever remembered by American botanists as the author of descriptive floras of the highest scholarly character, and put together with a rare regard for educational principles. Those who are fortunate enough to have owned and carefully used his books will recognize, in the light of our present advancement, that his knowledge of plants was more full and accurate than that of most of our American botanists who have written similar works. His life was not a happy one. The influences of prestige and station were deliberately turned against him, and he was to a great extent suppressed. The manuscript of his Class-book was used by him in teaching, and steadily perfected, for ten years before its publication, which was very successful. His work in life was that of an educator. He taught in and presided over a number of institutions, and brought educational and financial success wherever he went. In 1865 he made an overland botanical journey to California, then to Puget Sound, and home by way of the Isthmus. The specimens and observations accumulated on this journey were very valuable, but have never been systematically studied. He was professor in the New York College of Pharmacy during the two years preceding his death, in 1881.

Mr. Coe F. Austin was born at Closter, N. J., in 1831, and died in 1880. His chief characteristics were a marvelous energy and capacity for work, and great independence and originality in selecting his lines. His energy was closely confined, so far as general botany was concerned, to the local flora, and no other man has done so much to make known the flora of northern New Jersey. He was at the time one of the very few local

Digitized by Google

workers in bryology and practically our only close student of the Hepaticae. Unfortunately, his botanical zeal caused his family to be deprived of many of the important possessions of this life.

Mr. M. Ruger, who died in 1879 at the untimely age of 44, was in many respects a memorable character. His physical constitution was so weak that he could never attend school, nor engage in any vocation, yet he succeeded in acquiring a very liberal education, and in pursuing the avocation of botany until he came to be known as the Club's "walking encyclopedia." His knowledge of the local flora was remarkably full and remarkably accurate, and before he died this knowledge was extended over a large part of the country. Not only did his observations enrich the proceedings of the Club and the pages of the *Bulletin*, but his collections did much to build up the Club's herbarium. His work was notable for extending into such fields as that of mycology, then almost unworked, and for many years all questions arising in the Club relating to fungi were habitually referred to him. He was stricken down while botanizing and died two days later.

Professor Joseph Schrenck was a school principal in Hoboken, who applied his scholarly tastes and abilities to the study of botany in ways then little known among us, and he labored diligently and with great patience to lead others in the same direcion. He obtained a professorship to do evening work in the College of Pharmacy. This work, along strictly technical lines, led him to a deeper study of plants, both anatomical and physiological, by the use of the microscope and chemical reagents, than that which then prevailed here. From this experience he was soon led to deplore the superficiality of current work, and he started private classes among the Club's members for interesting them in methods which he saw must soon become dominant. Although general tendencies were not thus changed, many persons were interested, and some of our best workers of the present day acquired their first training in this direction from these humble efforts of Professor Schrenck.

During the same time another worker, Professor E. H. Day,

Digitized by Google

who reminds us of Schrenck in some ways, was active in similar work at the City Normal College. Tied down by the unceasing drudgery of wholesale elementary teaching, he might have been pardoned for falling into the rut and then into the slough, but on the contrary, he kept both his interest and his activity fresh, and he was ever alert in inspiring his students with a love of the subjects studied, which might lead them later to continue their studies as amateurs. In 1883, while occupying the chair at a Club meeting, he suggested the appointment of a sub-section for the study of physiological botany. A committee was appointed, consisting of Messrs. Hyatt and Britton, and Miss Knight, now Mrs. Britton. This was perhaps a very important historical event.

Dr. Timothy F. Allen had one of the longest uninterrupted careers as a member in the annals of the Club, extending from its foundation to 1902. During the early part of this career he was very active in the meetings and in all the work of the Club, and later he developed an interest as a successful investigator of the Characeae. His later life was an intensely busy one in the field of medicine, both as a practitioner and teacher, and his botanical activity was to a great extent crowded out, but he never lost his interest in the Club, nor did he ever fail in his readiness to respond to any special call for coöperation.

Mr. Wm. H. Rudkin was an active down-town business man, who lent his fine abilities to the financial management of the Club as its treasurer for many years when this duty required faithfulness, tact, sacrifice and responsibility. He was by no means wanting in botanical acumen, nor failing in activity, but it is in the capacity above mentioned that he is to-day deserving of our special remembrance and gratitude.

Dr. Emily L. Gregory, though not one of the older members of the Club, exerted a profound influence upon its character and upon that of botanical work in the city. Thoroughly educated in the best modern schools of Germany, and especially a disciple of Schwendener, she became here a missionary of advanced work and methods. She founded the botanical department of Barnard College and established there a botanical center which has since

Digitized by Google

steadily grown in strength and influence, and is now one of our most important botanical possessions.

It has been seen that the work of the Club was at first narrow as to the subjects involved, because the science itself was so, especially in this country. It continued afterward to retain this character, largely by force of habit. It is not true, however, as has been generally accepted, in response to the criticisms of those who did not know, that its work was confined to accumulating and naming specimens, enumerating circumscribed floras and studying individual structures. Its work was the study of living manifestations of plants in the field, a study which has of late been largely eliminated, to the very great misfortune of science, as here pursued. There came a time when New York experienced an invasion of botanists with concepts, knowledge, interests and methods which were largely foreign to us. Their importations were of incalculable value to New York, and at the same time most urgently needed, and resulted in giving to us a new, modern and broad botany. The event was not, however, free from unfortunate incidents. Laboratory work was given undue prominence. Ecological and other field work came to be largely neglected, and what might not inappropriately be called the disjointed period of the Club's history ensued.

With a few closing remarks, the history of the Club must be dismissed from further consideration. Its publication work has steadily increased, until it now includes three periodicals, the smallest much larger than was the *Bulletin* until many years after its commencement. It has published catalogues of plants of local and distant areas, monographs of important groups, and results of important anatomical, physiological and economic researches. It has collected lists of works and workers, and maintained indoor scientific meetings, at first one, then two monthly, and delightful, and on the whole, very profitable, field meetings, hereafter to be conducted on a systematic basis not previously attempted. It has conducted elementary courses of instruction, and given lecture courses. Its work has included every part of the vegetable kingdom, and covered almost every part of the world. Its influence in securing the establishment of our present botanical garden may next be considered.

Digitized by Google

So eager was the desire of the early members of the Club to observe how plants lived, that many of those able to own gardens ignored vegetables and flowers, and maintained little botanical gardens at their homes. Mr. Wm. Bower, for example, was a hard-worked die-cutter of Newark, yet he managed to accumulate, in his little city yard, a choice collection of native and foreign rarities. These statements relate to a period when the most generous botanizing grounds were still within easy reach of everyone, some of them existing even in the heart of the present city.

As succeeding decades of extending settlement destroyed the localities which had been so greatly prized, not only in the remote parts of the island but in the country round about, these people not only mourned their present loss, but were alarmed by the handwriting on the wall, and the demand for a botanical garden arose independently in the mind of every botanist, professional and amateur. So early as 1874 the Club appointed a committee to act with the New York Pharmaceutical Association in requesting the city to establish such a garden in Central Park.

As the educational side of our work grew in importance, and especially in breadth, and as the student body doubled and redoubled, the cry for the garden grew equally loud from that direction, and continued until at length it was satisfied. The great value to Harvard and its work of the well-managed plot that it utilized in this way was appreciated and often discussed at the little meetings which gathered around the old pot-stove in Professor Newberry's room, during his presidency of the Club.

Under the influence of Columbia's progress, as already described, it appreciated this want as much, probably, as any other of our botanical elements. Its peculiar relations to the former Elgin Garden were recalled in the public press. A contributor to the New York *Herald*, of November 26 and 27, 1888, made an earnest appeal for the recognition by the city of this great want. Dr. Arthur Hollick, to whose faithful and self-sacrificing work as secretary, our Club largely owed its strength for a prolonged period, directed our attention to these articles and proposed that he write an official letter to the *Herald* endorsing them. Such a letter was authorized, and it appeared on Decem-

Digitized by Google

ber 2 following. A committee was appointed consisting of Dr. Hollick, Mr. E. E. Sterns, and Professor Newberry, to deliberate and report to the Club whether it were advisable for us to take any action for the furtherance of this movement. The possibility of the realization of our long cherished hopes now began to take possession of our minds, yet without any very strong hope being entertained. The Club had no political influence and little acquaintance with those financial interests, the aid of which was rightly deemed to be essential to success. As it resulted, however, some of these men were led to interest themselves in the proposition, largely through the influence of Judges Addison Brown and Charles P. Daly, and of Mr. Charles F. Cox and Mr. Wm. E. Dodge. For a long time the idea was regarded with favor in influential circles, but without any definite steps being taken to execute it. Finally, it was remembered that all history teaches that when you have wearied of discussing a project, and are at length really resolved to carry it out, you must call in the assistance of the women. So a ladies' committee was appointed and held a memorable meeting at the residence of Mrs. Charles P. Daly, which some of the men, your favored speaker among them, were graciously permitted to attend. This influence, while but one of many, each of which was necessary to success, seemed to give the final impetus needed. Mr. Cornelius Vanderbilt assumed the financial and executive management of the enterprise, and the stage of organization was reached.

One element in the success of the Garden that has already shown itself to possess a value beyond price, and which is certain to do so with increasing clearness in the future, is the protective influence of its charter. Born of the learning, long and wide experience and ripe judgment of Judges Brown and Daly, and occupying their attention for considerably more than a year before they were willing to regard it as satisfactory, it seems to provide for every important contingency that it was possible to foresee, and it promises a safety, permanence and stability that are too often wanting in similar organizations.

To enter upon a discussion of the personal credit due in the membership, the board of managers and of scientific directors, and

Digitized by Google

in the Garden staff, would be an agreeable pleasure, but I must confine myself to the very earnestly made remark that the great success of the Garden has been due to the love of the institution and its work which has animated all concerned in it. It is this which has lent faithfulness, earnestness and energy and has incited to many acts of great sacrifice. If it could ever be said of any similar institution, we are able to say of this that it is a monument of loving service, in which work has been accepted in considerable part as its own reward. This is wholly true of Mrs. Britton's work in building up one of the most important departments of bryology in existence.

I dare not enter upon a detailed history of the Garden's development, and it has been so often and so recently recorded that I do not deem it necessary. An excellent account of its organization and of Columbia's relation to it, by Professor Underwood, can be found in the *Columbia Quarterly* **4**: 278. 1903. Our charter was secured in 1891 and was amended in 1894. It was agreed upon that 250 acres of park lands should be set apart for our use and $500,000 appropriated for the museum building and conservatories, as soon as an endowment fund of $250,000 was obtained. This fund was completed in 1895, Columbia University making the first subscription of $25,000. With the election of Dr. N. L. Britton as Director-in-Chief, and his selection of a working staff, the preparations were complete and work began in 1896, the event which we are to-day celebrating. This was the year in which the first part of Britton and Brown's Illustrated Flora was published. Ground was broken for the Museum Building in December, 1897, and for the conservatories in 1898. The Museum was opened in 1899. In 1898 the bulk of the herbarium of Columbia College, numbering nearly half a million specimens, and of its botanical library, including more than 5,000 bound volumes, was turned over to the Garden, in trust and for its use, under certain stipulated conditions. Since then the herbarium has been more than doubled, and the library has been enlarged to 18,000 volumes. A vast amount of grading has been done, many miles of walks and roadways built, bridges erected, and a great increase in all the collections has been made.

Digitized by Google

Besides the *Bulletin* and the *Journal*, regularly published, the Garden has entered upon a work of a much more ambitious character. Utilizing the David Lydig fund, bequeathed by Judge Daly, it has begun the publication of an elaborate "North American Flora," the first parts of which have already been published. Provisions have been made also for the publication of colored plates of American plants.

Among the very important undertakings maintained have been extensive explorations, not only in the United States proper, but in such distant regions as the West Indies and the Philippines. A tropical station is maintained in Jamaica for the convenience of visiting botanists. At the Garden a scholarship fund is maintained, by which it is rendered possible for investigators desiring to pursue important studies here to be supported for a limited period.

A bird's-eye view only is permitted us of the botanical forces at present active in our city, including schools and classes, societies and botanical gardens and parks.

Botanical instruction, in the form of nature study, is now an integral part of our elementary school system, and is continued, in one form or another, in the higher grades. Spring and fall lecture courses and object teaching are conducted at this Garden for the benefit of the grammar schools of the Bronx, and it is to be hoped that provision may soon be made for extending the opportunity to the other schools of the City. Systematic instruction for the botanical training of teachers is given at the City Normal College, Teachers College, in the pedagogical department of New York University, and by the Brooklyn Institute of Arts and Sciences. Important work in the same direction, as well as in that of original research, is conducted at the summer school of science at Cold Spring Harbor. Columbia University provides ample and exceedingly varied botanical work in its different departments. Botanical teaching at the College of Pharmacy, now a department of Columbia University, dates back almost to the beginning of the College, in 1829. Although its work is technical, an effort has always been made to keep in sight its scientific basis.

At Columbia University itself, the department of botany is in

Digitized by Google

charge of Professor Lucien M. Underwood, one of the most eminent, critical and conservative of botanical investigators, who has been accorded the status in universal botany that he merits. The bulk of the instruction work is under the immediate care of Dr. Carlton C. Curtis, and none better is given in any modern university. It seems most unfortunate that Dr. Curtis's great work should not be more generally known and more definitely recognized. This work is most ably supported by Professor Herbert M. Richards and Dr. Tracy E. Hazen in Barnard College, the department for women, which corresponds to Columbia College, for men. The instruction work at the New York Botanical Garden is of the most advanced character. Only those who have demonstrated their ability to pursue original investigations are admitted, and these are expected to engage while here in work of that character. More than half a hundred such pieces of original investigation have been conducted here in a single year.

Of local societies engaged in botanical work we have a number which are mere private associations, of a few persons, without formal organization, besides others to be mentioned. We have also a number, like the Linnaean Society, the Brooklyn Institute, the Staten Island Association of Arts and Sciences, the Bronx Society of Arts and Sciences, the West Side Natural History Society, and the local chapter of the Agassiz Association, which are engaged in the general pursuit of science, of which botany forms a part. Those devoted solely to botanical work of some sort are the New York Horticultural Society, which holds meetings, conducts lecture courses, and gives exhibitions, with the award of prizes; the Hulst Botanical Club of Brooklyn, a distinctly amateur organization; the Botanical Club of the Normal College, which aims to stimulate in its students and graduates a love of study, outside of that required by the regular course of instruction; and the Barnard Botanical Club, a somewhat similar organization, which aims to keep alive in the graduates a regard for the interests of the botanical department of that college, holds annually two regular meetings and provides one public lecture, and to which students of Barnard are eligible as members, after having performed one year of botanical work at the college.

Digitized by Google

Lastly, there is the Torrey Botanical Club, which endeavors to act as a central organization, representing in its membership that of all the other active botanical organizations in the city. Its present active membership numbers about 250, having increased 25 per cent. during the present year. It publishes three periodicals, holds two in-door meetings monthly, between October and May inclusive, and field meetings each Saturday during the season of plant growth. As has already been stated, an interest in plants from any point of view is the only botanical qualification required for membership, the nomination being made by some member of the Club and approved by the committee on admissions.

Among botanical gardens, it is not out of place for us mentally to include all the numerous and extensive horticultural establishments which abound in and about New York, among the stock of which is to be found such a great variety of plants of interest from botanical considerations. The public parks of this city are also to be justly regarded as affording important advantages for botanical work. Active and enthusiastic botanists are connected with them, and the planting, labelling and exhibiting are conducted with a view to interesting the public in the scientific basis of the work. The great collection of North American woods at the American Museum deserves special mention. People in this city who are interested in such subjects should also make themselves acquainted with the elaborate park system of Essex County, New Jersey, which has been laid out and organized with studious regard to future conditions and needs, and will undoubtedly develop important botanical features as time goes on.

Our own Botanical Garden you are to inspect to-day under unusually favorable circumstances. Even this, however, will give you but a very inadequate idea of the breadth and depth of its organization and character. There is scarcely a department of botanical work for the development of which provision is not made, the several departments being under the care of accomplished specialists. As you go about the grounds and enjoy the beautiful grades, the roads, walks, and bridges, you perhaps do not realize the immensity of the task involved in bringing them

Digitized by Google

into existence and at the same time establishing and developing the scientific, cultural and educational departments. From the time of its foundation, the Garden has had more than one interest clamoring loudly for the expenditure of every available dollar. Its economical and efficient management has usually contrived to divide that dollar and make each part of it do the work of the whole.

In the conduct of any growing enterprise not only does each step taken become a new point of departure, but new centers of work become established by the division of the old; and so our review would not be complete without a glance at the most important requirements for the future. One of these is the organization of a well-equipped botanical department at New York University. One of the leading universities of the country, with well-organized departments and many hundreds of students, it seems a continued misfortune that it should not be in a position to utilize the many facilities which we have to-day considered, and equally so that our science should not profit by the stimulus and support which would result from the maintenance of an adequate center of activity at University Heights.

Our Botanical Garden suffers greatly from the want of a larger endowment fund. Its charter provides for the construction and maintenance of its framework, but back of this lies the necessity for supporting its higher life, and for this support we must naturally look to its endowment. The two should keep close pace. The crown of the greater tree demands a greater root system for its support. Our plant has increased wonderfully in ten years, both in size and in the intensity of its activity, while the endowment has remained stationary. Its increase to the sum of $1,000,000 has been undertaken, and the amount is none too large and can come none too quickly. One of the special needs of the Garden, or rather of this part of the country through its Garden, is a department of forestry. From an economic point of view, this is by far the most important department of botany at the present time. Our need of increased forest resources is already alarming to every serious political economist. When an attempt is made to provide them, we find that we do not know

Digitized by Google

how; that every tree must be known separately, and that until this is done practical operations must fail; and that the acquisition of this necessary knowledge is as slow as the growth of the trees themselves. It is urgently necessary that such centers of investigation should be established in numbers. Scarcely anywhere is there an institution that combines so many advantages for a successful organization of this kind as here. Our Club has this year undertaken to arouse interest in the subject by providing a course of ten field lessons, conducted by competent instructors, and open to all our members, without charge.

Did time permit, I should be glad to speak on this occasion of the special needs of our Club. In a general way we should get back to the work for which we were originally organized — the study of our local flora, at present construed as that within a 100-mile radius of this city. To do it properly provides ample work for years to come. It is a work of important scientific value, yet includes popular features calculated to interest every member. All that is needed is a leader, and this is the point of difficulty. He must be a capable botanist, and he must give practically his whole time to the work. This means that he must be compensated, and this is possible only through an endowment fund, or through a very large membership list, for both of which we earnestly hope. If 200 others of the 10,000 or more persons of this section whose interest in plants entitles them to become members of the Club would do so, there would be ample provision for the undertaking of this work.

DOCTOR TORREY AND DOWNINGIA

By Edward L. Greene

In the course of my work, as the earliest pioneer of the movement in this country for priority in nomenclature, I met with no other synonym at that time usurping the place of a generic name which I was more reluctant to indicate as a mere synonym than Doctor Torrey's *Downingia*. It is a group of elegantly beautiful little plants; such a genus as might most aptly commemorate

Digitized by Google

in botany the name and services of a man so rarely accomplished in dendrology and the noble art of landscape-gardening as Andrew Jackson Downing.

Moreover, Doctor Torrey's occasion for thus honoring Downing in the proposed name for this particular genus was an interesting one, and particularly instructive in its bearing upon the principles of botanical nomenclature; all the more interesting since it reveals him as acting firmly, vigorously and without hesitation upon what he regarded as an intolerably vicious innovation in nomenclature, and this at a time which antedates all legislation, so-called, on the nomenclature of botany.

The genus which Doctor Torrey wished should bear the name *Downingia* had, to his knowledge, been twice named already. At the moment of his writing it was currently received as the genus *Clintonia*. He knew that, because of the existence of that name as applied to another genus of earlier date, the present *Clintonia*, as a name, was null and void. He was also aware that an eminent botanist in Europe, while attempting to displace the homonymous *Clintonia*, had made matters worse rather than better by dedicating this also to De Witt Clinton under the name *Wittia;* so that by this curious arrangement Clinton would have commemoration in botany by two genera, *Clintonia* Raf., and *Wittia* Kunth. Doctor Torrey, therefore, governed by that mere good sense which had precluded from the minds of all great botanists before him for two thousand years the very idea of dedicating two genera to one man, proposed the new name *Downingia* for Lindley's *Clintonia* and Kunth's *Wittia* in the same confidence with which he would have assigned the new name to an entirely new and nameless generic type. In the Pacific Railway Report, already cited by me in various places, his comment on the action is this: "It would be inadmissible to bestow two genera on the same person."

At the time of his writing Doctor Torrey must have been unaware that *Downingia*, even when newly published, was at once a synonym by virtue of Rafinesque's *Bolelia* and *Gynampsis*.* But the moment has seemed opportune for bringing to the notice

*See Pittonia, 2: 124.

Digitized by Google

of those enrolled for work under the patronage of Doctor Torrey's name, the example of his own way of dealing with such names as *Wittia*, *Porteranthus* and *Neowashingtonia*.

NATIONAL MUSEUM,
WASHINGTON.

TWO NEW DEWBERRIES OF THE HISPIDUS GROUP

BY W. H. BLANCHARD

The first is a dewberry and belongs to the *Hispidus* group, but it is very distinct from anything yet described. I propose to name it

Rubus jacens sp. nov.

Small-stemmed glabrous-leaved plants with five thin, narrow leaflets, slender prickles, glanded hairs, late flowers, nearly prostrate and tipping freely.

New canes. — Stems decumbent at first, eventually nearly prostrate, 2 to 3.5 feet long, slender, terete, red above, green below, generally unbranched, without pubescence, tipping early in September. Primary prickles slender, slanting backward, set at random, about 20 to the inch of stem; secondary prickles smaller and weaker, quite as numerous, shading to tapering hairs tipped with small glands. Leaves delicate, thin, 5-foliolate, dark yellow-green above, light-green below, glabrous. Leaflets narrowly oval, long-pointed, wedge-shaped at the base, finely and somewhat doubly serrate (not serrate-dentate), the middle one about 2 inches long, the others smaller. Petiole and petiolules slender, grooved above, with slender, hooked prickles and a few glanded hairs; the petiolule of the middle leaflet 0.5 inch long, the side ones short, and the basal leaflets sessile.

Old canes. — Stems prostrate, prickles and glanded hairs considerably impaired, no old leaves remaining. Second year's growth entirely of leafy, erect branches or stemlets tipped with inflorescence, one from the axil of each old leaf. Axis of stemlets zigzag, terete, slender, faintly pubescent, with a few weak prickles and glandular hairs. Leaves 3-foliolate, pointed, cuneate at the base, sharply and in part doubly serrate, color and texture like those of new canes. Inflorescence a short raceme 1.5 inches long, prickles few and weak, glanded hairs few, pubescence faint, pedicels slender, 8 to 12, set at nearly a right angle to the axis, subtended by small bracts or often large ones, passing to small

Digitized by Google

unifoliolate leaves. Flowers small, 0.87 to 1 inch broad, petals one half as wide as long. Fruit globular, black, sweet and pulpy; drupelets rather large, more than 0.12 inch in diameter, 1 to 10. Flowers late in June, fruits late in August.

Type station, Alstead, N. H. Abundant over the large Bellows Pasture on Signal Hill, two miles north of Forester's Mill. On open land in dry ground. This is the only place I have found where this dewberry grows, though a friend brought it to me from a neighboring pasture. I first found it July 16, 1902, and have collected it several times. Like *Rubus hispidus* L., it is a slender plant and tips well; but that species is 3-foliolate and has thick, shining, broad, short-pointed, cuneate-dentate leaflets which survive the winter, and hispid bristles rather than weak prickles, hugs the ground and branches freely, and in many other ways is nearly the opposite of this species.

The second dewberry is also of the *Hispidus* group and has a considerable resemblance to *Rubus jacens*. It is named and described as follows:

Rubus cubitans sp. nov.

Plants prostrate, glabrous, nearly destitute of prickles, bristles or glands, 5-foliolate, with thin, narrow, pointed leaflets, not surviving the winter.

New canes. — Stems slender, prostrate, 2 to 5 feet long, terete, red, glabrous and glandless. Prickles few, weak, set at random, slanting backward. Leaves small, 5-foliolate, glabrous, bright green on the upper surface, a little lighter on the lower. Leaflets narrow-oval, long-pointed, wedge-shaped at the base, finely and doubly serrate-dentate. Petiole and petiolules slender, grooved above, with slender, hooked prickles, the petiolule of the middle leaflet about 0.5 inch long, those of the side ones short and the basal leaflets sessile.

Old canes. — Stems killed back but little. Second year's growth entirely of leafy, erect branches or stemlets 4–6 inches long, tipped with inflorescence, one from the axil of each old leaf. Axis of branches zigzag, terete, slender; prickles very few and very weak. Leaves 3-foliolate, the leaflets broad-oval, rounded at the end, in color, serration and texture similar to those on the new canes. Inflorescence a broad raceme 2 inches long with 8–12 long, slender pedicels, glabrous, with occasional weak bristles and glanded hairs, subtended by rather large bracts.

Digitized by Google

Flowers 0.87 inch broad, petals narrow, one half as wide as long. Fruit small, globose, black, little maturing. Flowers before the middle of June, fruits early in August.

Type station in the southeastern part of Westminster, Vt., in the mowing and pasture surrounding the house of Geo. N. Banks. In dry or rich places, open ground.

I have known this plant since 1901 and have watched it closely. It seems to be a distinct species, but I do not know how widely it is spread. The detailed description gives it very little in common with *Rubus hispidus* L. and it is much earlier, blossoming two weeks before that species, when growing side by side.

WESTMINSTER, VERMONT.

SHORTER NOTES

GALACTIA ODONIA Griseb. — In his monograph of the West Indian Galactias, published in the second volume of "Symbolae Antillanae," Professor Urban states (p. 334) that he has not seen this species, no specimen being found in the herbaria of Göttingen, Kew, Cambridge or the British Museum; he therefore makes no disposition of it. A specimen is preserved, however, in the Columbia University herbarium, coming there in the collections of Professor Meisner, of Basle, presented by Mr. John J. Crooke; it is a type or cotype, bearing the number 864 of the collector, Rugel, who obtained it in western Cuba, and it enables me to reduce the species to the Cuban and Bahamian *Galactia rudolphioides* (Griseb.) Benth. & Hook., the earlier specific name.

N. L. BRITTON.

A NEW SOUTHERN CONVOLVULUS. — It is generally understood that *Convolvulus Sepium* L. is an introduced species in America, and that in *C. americanus* (Sims) Greene, we have a closely related but indigenous species. *C. repens* L. of the southern states exhibits variations which, when they are better known, may be recognized as species. The species described below shows relationship toward both *Convolvulus americanus* and *C. repens*, but is so distinct from either in the character of its indument that I venture to describe it as new.

Digitized by Google

Convolvulus sericatus sp. nov.

Annual: stems twining, 50–100 cm. high, tomentose above, usually glabrous only at the base: leaf-blades oblong-ovate, acuminate, somewhat hastate-cordate, green but finely appressed silky-pubescent above, white beneath with a very dense silky-tomentulose indument, 6–8 cm. long, 2.5–6 cm. broad near the base; the rounded basal auricles not spreading, 1–1.5 cm. long; petioles about half as long as the blades, tomentose: peduncles surpassing the subtending leaves, 7–11 cm. long, tomentose like the petioles; bracts equal, ovate, acute, 2.5–3 cm. long, tomentose without, glabrous within: sepals lanceolate, 11–13 mm. long, glabrous, the evident midvein ending in a minute cusp at the apex: corolla pure white, funnelform, 5–6 cm. long, the limb as broad or slightly broader: capsules about 1 cm. in diameter.

Georgia; near Rabun Bald, Rabun County, in thickets along mountain sides, 3,500–4,000 feet altitude, June 4, 1906 (*no. 2270*). The type is divided and deposited in the herbaria of the U. S. National Museum and the New York Botanical Garden.

The plant is conspicuous on account of its pure white flowers and white indument of the foliage and younger parts. It appears to be perfectly indigenous to the region and does not occur in the few small cleared fields in the valleys and coves. In color and shape of the corolla only does *Convolvulus sericatus* resemble *C. repens*, which is sometimes a twiner, but has smaller, glabrous, and more obtuse bracts than *C. sericatus*. In shape of leaf-blades and in habit *C. sericatus* resembles *C. americanus*.

HOMER D. HOUSE.

CLEMSON COLLEGE.

REVIEWS

De Vries' Species and Varieties, Second Edition*

The first edition of de Vries' "Species and Varieties: their origin by mutation" having been exhausted within a year from the time of its publication, a second edition has been issued. The tone of the reviews of the first edition indicated the general favor which the work met among scientific men and predicted the reception it has had. It is gratifying to see a work of high sci-

* De Vries, Hugo. Species and Varieties: their origin by mutation. Second edition corrected and revised. 8vo, pp. xviii + 847. *Frontispiece.* Chicago: The Open Court Publishing Company. 1906.

Digitized by Google

entific merit meet such an instant demand, and all science benefits by the diffusion of such a work among the general reading public. Although the text of the new edition is essentially that of the first, the occasion has been used to correct the typographical errors that marred the beauty of the first edition, and to remove certain ambiguities of expression which had escaped the editor's notice in the preparation of that edition. A note is added on p. 575 explaining that the species used by de Vries as "Oenothera biennis" is not *Oe. biennis* as it is known to American botanists, and has not yet been found in nature in America. The insertion of an excellent photogravure of the author adds much to the artistic and sentimental value of the book, and the publishers are to be congratulated on the pains they have taken to make this second edition even more valuable and attractive than the first. There can be no doubt that it will continue to have a large circulation and to diffuse scientific knowledge of advanced character beyond the limits usually reached by scientific works.

GEORGE HARRISON SHULL.

Pfeffer's Physiology of Plants*

This volume, published on March 14, 1906, marks the completion of Professor Ewart's English translation of Pfeffer's *Pflanzenphysiologie*. Volume I, dealing with metabolism, appeared in 1900, and Volume II, on growth, reproduction and maintenance, in 1903.

Volume III treats of movement; the production of heat, light and electricity; and the sources and transformations of energy in the plant. The sense of the original and difficult German has been admirably preserved in the English rendering, though it is not always easy to tell just where the author leaves off and the translator begins.

In the matter of style, the text usually gives universal for partial negatives, as, *e. g.*, on page 307, where it is stated that, "All

* Pfeffer, W. The Physiology of Plants. A Treatise upon the Metabolism and Sources of Energy in Plants. Second fully revised edition, translated and edited by Alfred J. Ewart. Vol. III. Pp. viii + 451. *f. 1–70.* Oxford: At the Clarendon Press. 1906.

Digitized by Google

motile organisms do not show shock reactions," etc. And so throughout the book, though the meaning is usually obvious, this illogical form of expression is much too common in scientific writings.

Close adherence to accurate terminology frequently arrests the attention of one accustomed to looser nomenclature. Thus Darwin's term "nictytropic" becomes *nictynastic*. The suffix "tropic" (tropism) is rigidly reserved for responses to unilateral stimuli, while, for responses produced by diffused stimuli, the ending "nastic" (nasty) is used.

Chapter I is a general discussion of movement. Chapter II is entitled Movements of Curvature. Under this head are discussed autonomic (*i. e.*, spontaneous) movements; twiners and climbers; movements due to mechanical and chemical stimuli; and aitionastic (photonastic, thermonastic, and hydronastic) curvatures; Chapter III is given to tropic movements; Chapter IV to locomotory and protoplasmic movements; and Chapter V to the production of heat, light and electricity. The sources and transformations of energy in the plant are discussed in the sixth and last chapter.

An appendix is devoted to "some important facts not mentioned in the first two volumes" and to "a summary of the more recent literature." The historical résumés, which were a feature of the first two volumes, also enhance the usefulness of this one.

Besides the intrinsic value of the text itself, the copious references throughout serve to put one *en rapport* with most of the existing literature on the subject. The American reader can hardly help noticing the absence of citations of the work of his own countrymen, scarcely more than three or four American authors being referred to in the bibliographies. This is due partly to oversight of existing literature, and partly to lack of productive scholarship in America. The bibliography, like most others in biologic science, is a tribute to German scholarship.

One's attention is somewhat jarred by reading on pages 64–65 that "A tickling sensation is awakened in the epidermis of man and of tendrils," etc.

It is difficult, however, to make adverse comment because the volume offers so few opportunities.

Digitized by Google

The translator's emphatic position against unnecessary multiplication of terms will meet with a warm welcome from most readers. The case is made especially strong by such suggestions as "physieclexis," for natural selection; "plaster-of-Paris-cleistogamy," in connection with thermo-, photo-, and hydrocleistogamy; and "parallelo heliotropocampylostrophismic (tortismic) irritability" to describe an organ that "partly twists and partly curves towards the light."

The sincere thanks of all English and American botanists are due to Professor Ewart for making the work accessible in their own tongue. The most comprehensive, and doubtless, also, the most authoritative treatise on the subject in German, this work in its translation easily assumes a similar position in botanical literature in English. It is a monument alike to translator and to author.

C. STUART GAGER.

PROCEEDINGS OF THE CLUB

MAY 8, 1906

The meeting of May 8, 1906, was held at the American Museum of Natural History at 8 P. M. President Rusby was in the chair; 15 persons were in attendance.

After the reading and approval of the minutes of the previous meeting, the following persons were nominated for membership: Miss Elizabeth Billings, 279 Madison Avenue, N. Y. City; Charles H. Bissell, Southington, Ct.; Dr. Louise M. Dithridge, 42 Lorillard Place, Bronx; Prof. W. A. Kellerman, Ohio State University, Columbus, Ohio; Adolph Koenig, Edgewood Park, Pa.; Arthur N. Leeds, 3221 N. 17th Street, Philadelphia, Pa.; J. Schneck, Mt. Carmel, Ill.; Prof. H. M. Stephens, Dickinson College, Carlisle, Pa.; Dr. Edmund Bronk Southwick, Central Park, N. Y. City.

The secretary cast the ballot of the Club, electing these persons to membership.

Digitized by Google

The scientific program was an illustrated lecture by Dr. Grace E. Cooley on "Forestry."

The lecture considered the relation of forests and forest products to man, and the consequent importance of an intelligent comprehension of the principles and economic bearings of forestry. The nature of various important species of trees was treated of from the standpoint of silviculture, treating the tree as an individual plant; forestry, considering tree groups, or forests; physiography, discussing the relation of trees to the landscape and physiographic processes, and also from the point of view of economics and aesthetics. The historical development of the U. S. Bureau of Forestry was briefly traced from the early beginning, when a few interested persons met regularly at the home of Mr. Gifford Pinchot for discussion and instruction, up to the present organization of the national forest service. Forestry in other countries was also alluded to, and its long recognition and advanced stage of perfection abroad standing in contrast to its rather tardy development in the United States.

The meeting adjourned at 9:30 o'clock.

C. STUART GAGER,
Secretary.

MAY 23, 1906

On May 23, 1906, the Club held a special meeting in commemoration of the tenth anniversary of the commencement of work in the development of the New York Botanical Garden.

The meeting was held in the lecture hall of the Museum Building at the Botanical Garden. President Rusby presided, and there was an attendance of 125. The following persons were elected to membership; Percy L. Ricker, U. S. Department of Agriculture, Washington, D. C.; Miss Winifred J. Robinson, Vassar College, Poughkeepsie, N. Y.; Miss Bina Seymour, 115 West 84th Street, N. Y. City.

After the election of new members the Club listened to an illustrated lecture by its President entitled, "A Historical Sketch of the Development of Botany in New York City."

Dr. Rusby's address is published in full in the June and July numbers of TORREYA.

Digitized by Google

The lecture was followed by an informal reception in the library, and by an inspection of the library, laboratories, herbaria and the museum exhibits.

C. STUART GAGER,
Secretary.

NEWS ITEMS

Dr. Herbert Maule Richards has been promoted to the professorship of botany in Barnard College, Columbia University.

Dr. W. W. Rowlee, assistant professor of botany in Cornell University since 1893, has been advanced to the rank of professor.

Conway MacMillan has resigned the professorship of botany in the University of Minnesota in order to engage in business enterprises.

We learn from *Science* that Dr. George Macloskie, professor of biology in Princeton University since 1875, has been appointed professor emeritus.

Dr. Duncan S. Johnson, associate professor of botany in Johns Hopkins University since 1901, has been advanced to the professorship of botany in that institution.

Lucien M. Underwood, Torrey professor of botany in Columbia University, received the degree of doctor of laws from Syracuse University at the last annual commencement, June 13.

In the Ohio State University, Mr. Robert F. Griggs has recently been promoted to an assistant professorship of botany, and Miss Freda Detmers to an instructorship in the same subject.

Dr. C. F. Millspaugh, curator of the botanical department of the Field Museum of Natural History, Chicago, returned in the latter part of June from a three months' visit to Europe.

Miss Helen Letitia Palliser (A.B., Columbia, 1905), who has been pursuing graduate studies in Columbia University during the past year, has accepted an appointment as assistant in biology in Vassar College.

Dr. T. C. Frye, professor of botany in the University of Washington, at Seattle, is spending a month at the New York Botani-

Digitized by Google

cal Garden, engaged in studying his collections of Pacific Coast mosses.

Mr. Howard S. Reed, instructor in botany in the University of Missouri since 1903, has resigned that position to accept an appointment in the Bureau of Soils of the U. S. Department of Agriculture.

Dr. George H. Shull, of the department of experimental evolution of the Carnegie Institution of Washington, has recently been in Santa Rosa, California, making a study of Mr. Luther Burbank's experiments in plant breeding.

Dr. Forrest Shreve, recently appointed associate professor of botany in the Woman's College, Baltimore, returned June 11 from a residence of eight months at the tropical laboratory of the New York Botanical Garden at Cinchona, Jamaica.

Dr. Cyrus G. Pringle, keeper of the herbarium of the University of Vermont, returned in June from his twenty-fifth annual collecting trip to Mexico, but left Burlington on July 5 for another Mexican expedition. He was given the honorary degree of doctor of science at the last commencement of the University of Vermont.

The *Botanical Gazette* for June states that Dr. Bradley Moore Davis, assistant professor of botany in the University of Chicago, has been spending the spring in Cambridge, completing a textbook of botany in co-authorship with Mr. Joseph Y. Bergen; also that his connection with the University of Chicago ended on July 1.

The German Botanical Society offers a prize of one thousand marks for the best essay on the correctness of the doctrine of the polymorphism of the algae. Manuscripts submitted in competition must be written in German, English, French, or Italian, and must be in the hands of the secretary of the Society, Prof. Dr. Carl Müller, Steglitz bei Berlin, Zimmerstrasse 15, by December 31, 1907.

Digitized by Google

Digitized by Google

OTHER PUBLICATIONS

OF THE

TORREY BOTANICAL CLUB

---

(1) BULLETIN

A monthly journal devoted to general botany, established 1870. Vol. 32, published in 1905, contained 691 pages of text and 29 full-page plates. Price $3.00 per annum. For Europe, 14 shillings. Dulau & Co., 37 Soho Square, London, are agents for England.

Of former volumes, only 24–32 can be supplied entire; certain numbers of other volumes are available, but the entire stock of some numbers has been reserved for the completion of sets. Vols. 24–27 are furnished at the published price of two dollars each; Vols. 28–32, three dollars each.

Single copies (30 cts.) will be furnished only when not breaking complete volumes.

(2) MEMOIRS

The MEMOIRS, established 1889, are published at irregular intervals. Volumes 1–11 and 13 are now completed and Nos. 1 and 2 of Vol. 12 have been issued. The subscription price is fixed at $3.00 per volume in advance. The numbers can also be purchased singly. A list of titles of the individual papers and of prices will be furnished on application.

(3) **The Preliminary Catalogue of Anthophyta and Pteridophyta** reported as growing within one hundred miles of New York, 1888. Price, $1.00.

Correspondence relating to the above publications should be addressed to

THE TORREY BOTANICAL CLUB
Columbia University
NEW YORK CITY

Digitized by Google

RECEIVED,
AUG 27 1906

Vol. 6 August, 1906 No. 8

TORREYA

A MONTHLY JOURNAL OF BOTANICAL NOTES AND NEWS

EDITED FOR

THE TORREY BOTANICAL CLUB

BY

MARSHALL AVERY HOWE

JOHN TORREY, 1796–1873

CONTENTS

The Rate of Growth of Panaeolus retirugis: GERTRUDE E. DOUGLAS 157
Bossekia or Rubacer: P. A. RYDBERG. 165
Tetebinthus Macdougali, a new Shrub from Lower California: J. N. ROSE..... 169
Notes on southern Violets—I: HOMER DOLIVER HOUSE..... 171
Reviews
Knuth's Handbook of Flower Pollination: C. STUART GAGER..... 173
Field Meet ngs of the Club 175
News Items 178

PUBLISHED FOR THE CLUB
AT 41 NORTH QUEEN STREET, LANCASTER, PA.
BY THE NEW ERA PRINTING COMPANY

Digitized by Google

THE TORREY BOTANICAL CLUB

OFFICERS FOR 1906

President,
HENRY H. RUSBY, M.D.

Vice-Presidents,
EDWARD S. BURGESS, PH.D. LUCIEN M. UNDERWOOD, PH.D., LL.D.

Recording Secretary,
C. STUART GAGER, PH.D.
Botanical Garden, Bronx Park, New York City.

Corresponding Secretary,
JOHN K. SMALL, PH.D.
Botanical Garden, Bronx Park, New York City

Editor,
JOHN HENDLEY BARNHART, A.M., M.D.
Tarrytown, N. Y.

Treasurer,
CARLTON C. CURTIS, PH.D.
Columbia University.

Associate Editors,
ALEX. W. EVANS, M.D., PH.D.
TRACY ELLIOT HAZEN, PH.D.
MARSHALL A. HOWE, PH.D.
WM. ALPHONSO MURRILL, PH.D.
HERBERT M. RICHARDS, S.D.
ANNA MURRAY VAIL.

TORREYA is furnished to subscribers in the United States and Canada for one dollar per annum; single copies, fifteen cents. To subscribers elsewhere, five shillings, or the equivalent thereof. Postal or express money orders and drafts or personal checks on New York City banks are accepted in payment, but the rules of the New York Clearing House compel the request that ten cents be added to the amount of any other local checks that may be sent. Subscriptions are received only for full volumes, beginning with the January issue. Reprints will be furnished at cost prices. Subscriptions and remittances should be sent to TREASURER, TORREY BOTANICAL CLUB, 41 North Queen St., Lancaster, Pa., or Columbia University, New York City.

Matter for publication should be addressed to

MARSHALL A. HOWE
New York Botanical Garden
Bronx Park, New York City

Digitized by Google

Vol. 6 No. 8

TORREYA

August, 1906

THE RATE OF GROWTH OF PANAEOLUS RETIRUGIS *

By Gertrude E. Douglas

During the last of March, 1906, mycelium of *Panaeolus retirugis*, scattered throughout the pots in the palmhouse of the conservatory in connection with the Department of Botany of Cornell University, began to put forth fruiting bodies in great numbers. As the rate of growth of mushrooms is a matter of some interest, individuals of this species were selected in as early stages as possible and measured twice a day until they had reached maturity. These measurements were taken in the morning and evening at the same time every day, the day interval between them being of eight hours and the night of sixteen. A large number of individuals were measured during the period from March 22 to April 4, but complete records were obtained from only eighteen, owing to the sensitiveness of the mushrooms. A few of them fell over under their own weight, while others were injured by some disturbance of the soil around them. Although great care was taken in using the dividers, some plants, especially in their early stages, were injured by accidentally touching them with the instruments.

The first appearance of the mushrooms above the surface of the soil was a small dark-brown button, from 2 to 3 mm. high and 2 mm. wide. This developed rapidly. The stem grew very fast at first and pushed the pileus up into the air. The pileus at the same time grew rather slowly but steadily, enlarging at about the same rate in all dimensions, the length remaining slightly greater than the width. Just before the stem had ceased its

* Contribution No. 113 from the Department of Botany of Cornell University.

[No. 7, Vol. 6, of Torreya, comprising pages 133-156, was issued July 25, 1906.]

Digitized by Google

period of most rapid growth, the pileus began to increase rapidly in width, gaining at the same time only a little in length. The

FIG. 1. *Panaeolus retirugis* Fr. A group of plants from a lawn along a street. The young plants at the left show the veil, which breaks into V-shaped loops and clings to margin of the cap. [From Atkinson's Mushrooms, edible, poisonous, etc.]

growth in width sometimes continued one or two days after the stem had ceased to grow. In the early stages, there was a stout

Digitized by Google

veil, extending from the margin of the pileus to the stem. As the plant developed, this became free from the stem and clung to the margin of the pileus. When the plant had reached maturity, traces of the veil could still be seen in small V-shaped projections clinging to the pileus, as shown in figures 45, 47 and 48 of Atkinson's "Mushrooms, edible, poisonous, etc.," 1903. (FIGURE 1.)

The width of the stem remained nearly the same throughout the growth of the plant. It was slender upon first appearing but it soon increased in diameter, and when the plant was from 10 to 20 mm. high, was as large as at maturity. The color of the plant was dark-brown, until the pileus began to expand laterally, when it became grayish and spotted with brown or black patches. It matured in from 80 to 120 hours after appearing above the ground.

Some of the mushrooms became much larger than others, being at maturity 160 mm. in height, with a pileus of 40 mm. or more in diameter. The majority of the specimens, however, ranged from 120 mm. to 150 mm. in height, with a pileus 30–40 mm. in diameter. Those which became the largest came up nearest the base of the palm or fern trees, due probably to the greater amount of moisture here than towards the edges of the pots. The rate of growth of the eighteen plants, whose records were very nearly complete, has been worked out in curves shown in FIGURES 2 and 3.

As No. A was a very typical specimen, and as the most complete record was obtained of this, I shall describe its growth in some detail. The first measurements were taken in the morning. During the first 8-hour period by day, the plant did not change. However, during the following night, it began to grow slowly until it was 10 mm. high. On the following day, the stem entered on a period of very active growth which lasted about fifty-six hours, until the plant was 145 mm. high. During this period of active growth, the rate at first increased and then decreased slightly. The stem continued growing slowly for sixteen hours after this rapid growth interval.

The pileus began to grow slowly at the same time as the stem. It increased steadily but slowly for sixty-four hours, the width

Digitized by Google

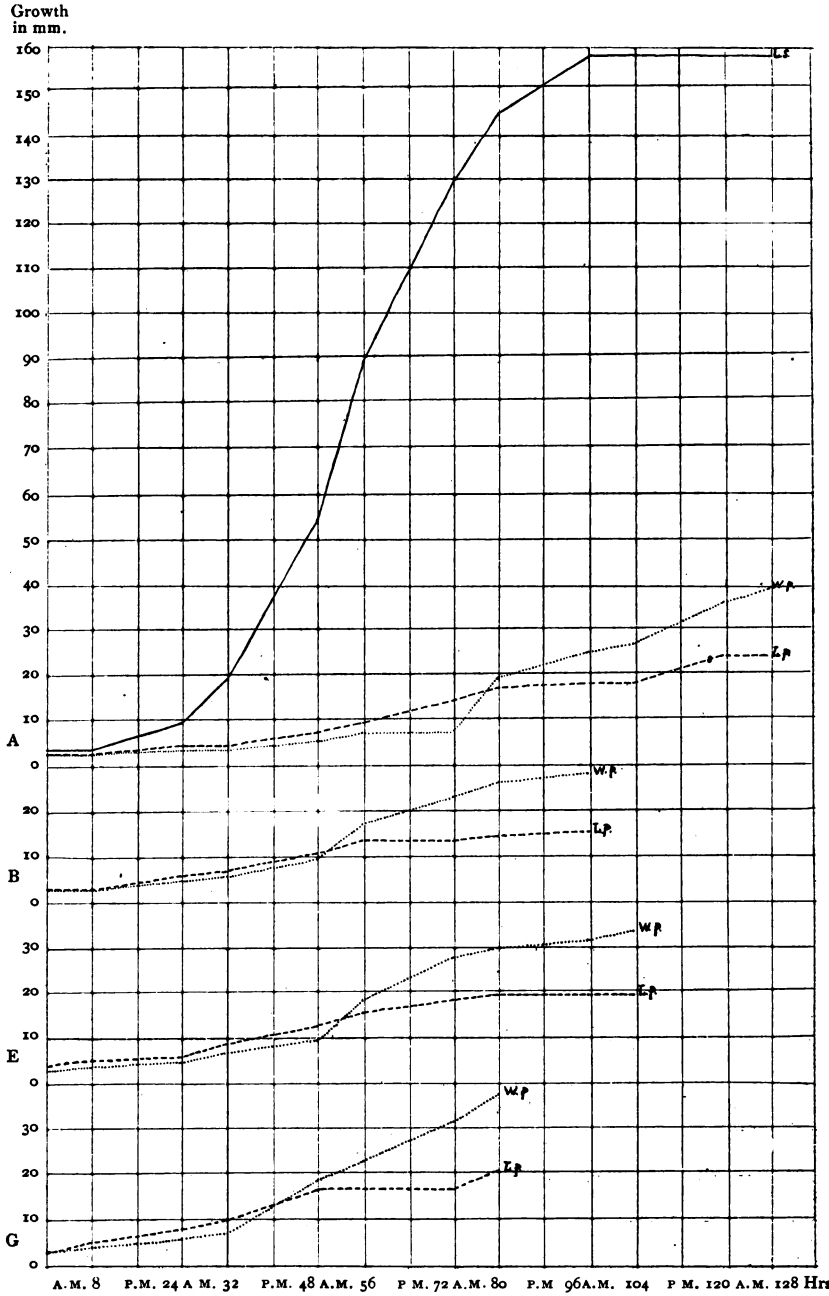

FIG. 2. *Panaeolus retirugis.* Plant A. Curves of a typical specimen showing rate of growth in length of stem and length and width of pileus.

Plants B, E and G. Curves showing rate of growth in length and width of pileus of three other specimens

Digitized by Google

remaining slightly less than the length. During the last day of the most active stem growth, the width of the pileus made a rapid increase, from 8 to 20 mm. and continued broadening for 32 hours, after the stem had ceased to grow, until it reached 40 mm. At the same time the length continued increasing slowly till it reached 25 mm.

The plant was growing six days and five nights, after its first appearance above the soil. The growth appeared to be no more rapid by night than by day. This was true also of the other specimens measured. In plant A the greatest growth which took place in any one period was during the third day. In the other plants, it occurred sometimes by day and sometimes by night.

The growth of the other specimens was very similar to this one, which has just been described. Of the records of other young plants, although their measurements were not started as early as in A, several (B, D, F, G, H, I) show an interval of slow growth at first. In records from other plants, which were not completed, because of some injury to the plant, this was also the case. After this short period of slow growth, the stem curves show a period of very rapid growth, lasting from forty to fifty-six hours. In some of the plants (P, B, H, T) the rate was nearly constant throughout the interval. In others (A, E, G, F, I, H) the rate increased up to a certain time and then decreased somewhat. In a few mushrooms (C, O, T) the curves are quite irregular, showing abrupt changes in succeeding intervals.

This period of very rapid growth was followed by another interval of slow growth, lasting about twenty-four hours, after which growth ceased. In E, F, G and B the rate was slow and steady for twenty-four hours. In the remaining plants, the curves are irregular showing slow growth at first, followed by a rapid increase in rate. Plant N gained only 1 mm. during twenty-four hours and 9 mm. during the next eight hours. Growth usually ceased abruptly after this period although in a few cases it continued to increase slightly while the pileus was developing.

The pileus of all the specimens developed very much as in plant A. In FIGURE 2, curves of three other plants are given,

Digitized by Google

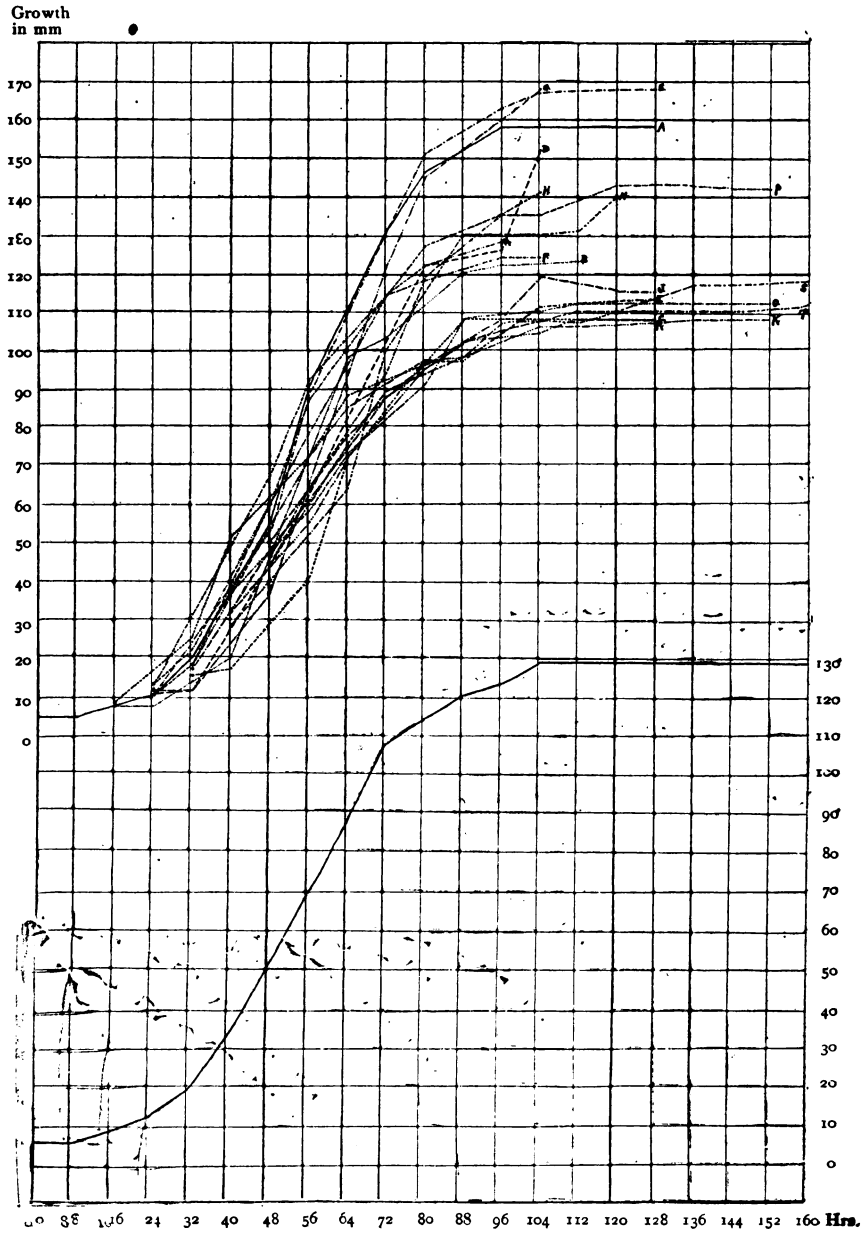

FIG. 3. Curves showing rate of growth in stem of eighteen plants of *Panaeolus retirugis*. Resultant curve beneath.

Digitized by Google

which are typical of them all. It began its growth with the stem and enlarged gradually, the width curve closely following just beneath the length curve. Suddenly the width curve crosses above the length curve. This usually takes place in the last interval before the stem ceases its most active period of growth. In four cases it did this sooner. The length curve still continues at about the same rate while the width curve keeps on at its increased rate. In some cases the rate is nearly constant, but in others somewhat variable.

The pileus often continued growing after the stem had ceased to elongate; and even when it had begun to dry and decrease in length (J, P). In O it enlarged for as many as forty hours after the stem had stopped its growth.

The width of the stem was at first about 2–3 mm. It soon increased to 3 or 4 mm. when it began to elongate. It remained of the same width until the plant was mature. Before maturity was reached, the stem in some cases decreased about 1 mm. in diameter, due to the drying of the cells in the parts which had ceased to grow.

A few plants were marked to determine in what region of the stem the greatest growth took place. A section of the pileus was cut off in each case so that the whole stem, from the ground to the point where it joined the pileus, might be taken into account. The marks were placed 2 mm. apart. The marked mushrooms were very sensitive to injury and for this reason I was not able to get records more than three times from each plant. The records show that the greatest increase in length took place near the top of the stem (see FIGURE 4). It was usually not in the topmost interval, but in one or two down from the top, near the margin of the pileus. The plants grew for several intervals down the stem, but no growth took place in the lowest ones.

These results in regard to the position of growth in the stem are similar to those obtained by J. Schmitz * in 1841, from the Hymenomycetes. He divided the stem into thirds and found the

* J. Schmitz. "Mycologische Beobachtungen als Beiträge zur Lebens- und Entwickelungsgeschichte einiger Schwämme aus der Klasse der Gastromyceten und Hymenomyceten." Linnaea 16: 141–215. 1842.

Digitized by Google

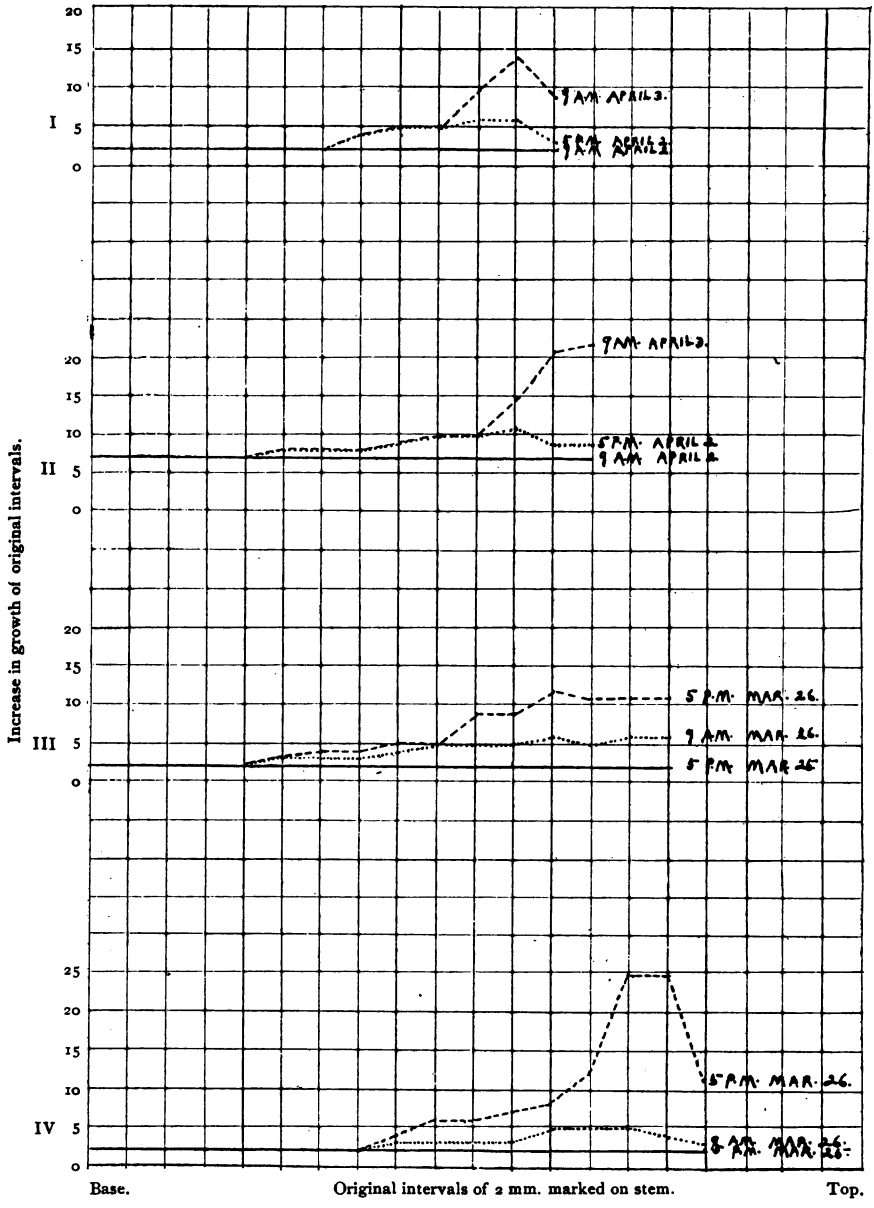

FIG. 4. Curves showing rapidity of growth in different parts of stem of *Panaeolus retirugis*.

Digitized by Google

greatest growth to take place in the topmost third, less growth in the middle third, and very slight or no growth in the bottom third. In some plants he divided his topmost interval into two parts and found that in many cases the topmost half grew less than the one beneath, although there were a great many variations from this.

In conclusion, the typical *Panaeolus retirugis*, grown under green-house conditions, requires from 4 to 5 days for the complete development of the fruit body after appearing above the ground. The stem grows slowly at first, then very rapidly for from 40 to 56 hours, then for about twenty-four hours slowly again until it ceases.

The pileus grows slowly but steadily at first and enters on its most active period of growth just before this ceases in the stem. The width remains slightly less than the length until this time. It now broadens more rapidly and continues increasing at this rate while the length increases only slowly. The pileus in many cases continues its expansion after the stem growth has been completed.

Growth is no more rapid by night than by day. The growth region of the stem lies near the top, the greatest growth taking place a few mm. below the top of the stem.

This work was undertaken at Cornell University, under the direction of Professor G. F. Atkinson, to whom I am indebted for many helpful suggestions and for the use of photographs of the developing *Panaeolus retirugis*.

ITHACA, NEW YORK,
July 7, 1906.

BOSSEKIA OR RUBACER

BY P. A. RYDBERG

Dr. Greene * has replaced my generic name *Rubacer* by *Bossekia* Necker.† I wish to make a protest, not so much against the replacement of the name as against the spirit and manner in which

* Leaflets 1 : 210. Ap 1906.
† Elem. Bot. 2 : 91. 1790.

Digitized by Google

it was apparently done. Dr. Greene credits himself with having relieved the genus "of a name so cheap and ill-made as *Rubacer*." As another botanist has placed that name among the hybrid words,* I shall try to meet both accusations at once.

The word *Rubacer* is composed of two good Latin words, *Rubus*, raspberry and *Acer*, maple; hence it is no hybrid of two languages. In making compound words, the most common usage in the Latin language was to take the stem of the first word (in this case *Rub-*), and to insert the connecting vowel *-i-*, between the two components, if the second part began with a consonant. If it began with a vowel, the *-i-* was omitted. Hence *Rub-acer* is formed according to Latin usage. Perhaps it might have been better to reverse the order and to call the genus *Acer-i-rubus;* but as this is very awkward to pronounce, *Rub-acer* was preferred. The reason why *Acerirubus* might have been better, is that in Latin as in modern languages the modifying word was usually placed first in compounding words; but this was not always the case. If I prefer to call the old *Rubus odoratus* L. a raspberry-maple instead of a maple-raspberry, I am well within my rights. Dr. Greene's claim that I have named it "Red Maple" can not be taken seriously, for in Latin red maple would always be *Acer rubrum*, and Dr. Greene knows just as well as I, that if a compound word should be formed, in which the first component should be *ruber*, red, it would be very bad orthography to leave out the *-r*. If I had intended to make a name meaning red-maple (observe, not red maple), it would have been *Rubracer* instead of *Rubacer*.

No, with Dr. Greene the "ill-making" was not so much this, as the fact that he dislikes compound names formed by combining two generic names, as he shows in a preceding article.† To him *Cytisogenista*, *Lilionarcissus*, *Malvalcea*, *Sidalcea*, *Conioselinum*, *Ammoselinum*, etc., are "ill-made" and "cheap." Yet, Dr. Greene has made at least one such name, *Schoenocrambe*.‡ Perhaps he had some other reason for making that name; but

* T. Holm, Ont. Nat. Sci. Bull. 1: 36. 1905.

† Leaflets 1: 202.

‡ Pittonia 3: 124. 1896.

Digitized by Google

the mere fact that there existed two genera *Schoenus* and *Crambe* places the name in the same category.

If I should use the same kind of sarcasm as Dr. Greene used when he claimed that *Rubacer* meant red maple, I would claim that his genus *Madronella* * was a diminutive of the Italian "madrona," and hence meant "a little matron"; but it is "cheaper" than that. Euphonious as it is, it is formed by "pieing" the letters of the first part of *Monardella*. Notwithstanding Dr. Gray's remark, that "a neat anagram is not bad," surely there is no easier ("cheaper") way of forming new generic names than making *Abdra* (is this even neat?) from *Draba*, *Sibara* from *Arabis*, *Celome* from *Cleome*. They are wholly meaningless, and a child playing with blocks may succeed just as well. They are at least as "cheap" and "ill-made" as *Rubacer*. But one should not dispute about tastes.

Now as to the validity of the name *Bossekia* Necker, for the genus *Rubacer* Rydb. There is nothing in Necker's diagnosis that points directly to *Rubus odoratus* L. It is only by inference that anyone can come to the conclusion that that species is intended, and it is only from the fourth and the last lines of the diagnosis that any clue can be had. These read respectively:

"*Folia simplicia.* Caulescentes proles."

"*Folia simplicia.* Quid. Rub. Linn."

Supposing that Necker had the first edition of Linnaeus' Species Plantarum, there are in it but two species of *Rubus* with simple leaves, *Rubus odoratus* and *Rubus Chamaemorus*. Dr. Greene indicates that the latter may safely be excluded, for he states concerning Necker: "He also defined it [*i. e.*, *Dalibarda*] as that it might include the still older genus *Chamaemorus*." When Dr. Greene made this statement, he had apparently not studied Necker's diagnosis of *Dalibarda* as closely as he ought. It would be too presumptuous to claim that he intentionally or carelessly misrepresented the facts. There are three points in this diagnosis, with which *R. Chamaemorus* essentially disagrees. These are:

"*Semina*, 5, nuda. Scaposae proles."

* Leaflets 1: 168.

Digitized by Google

"*Fructific.* monoica."

"*Styli*, 5."

Rubus Chamaemorus L. is not scapose or scapiferous, as *Dalibarda* is; the herbaceous flowering stem has often three or four leaves. Someone may claim that Necker's idea of *scaposus* differed from the accepted one of the present day; but this claim does not hold in this case, for Necker characterized *Rubus* as "*Folia composita*, caulescentes proles." He evidently included in it two well-known European species with herbaceous stems and compound leaves, which were described in the first edition of the Species Plantarum, *viz.*, *Rubus saxatilis* and *R. arcticus*. Of these the latter at least is one-flowered and of the same habit as *R. Chamaemorus*.

Rubus Chamaemorus is never monoecious, but dioecious by the abortion of either the gynoecium or the androecium; while *Dalibarda* is monoecious as Necker described it. For emphasis, he also added after the description:

"Obs. *Mares & feminae, in iisdem individuis.*"

Necker gave for *Dalibarda*: "*Styli*, 5," "*Semina*, 5, *nuda*." In *Dalibarda* the pistils are usually five and hence the drupelets five. The latter are rather dry and perhaps that is the reason why he gave the character: "*Semina*, 5, *nuda*"; while in the corresponding places in the diagnoses of *Rubus* and *Bossekia*, he gave: "*Bacca, minoribus formata*" (berry formed by smaller ones) and "*Bacca, minoribus* 1-*spermis, constans.*" *Rubus Chamaemorus* has many pistils and many drupelets forming a large so-called berry. Necker could never have intended to include it in his diagnosis of *Dalibarda*.

The preceding discussion has been founded upon the supposition that Necker referred to the first edition of Linnaeus' Species Plantarum, in his diagnoses of *Rubus*, *Dalibarda* and *Bossekia*. This, however, can not have been the case; for under *Dalibarda* also, he gave:

"*Folia simplicia.* Quid. Rub. Linn."

In the first edition of Species Plantarum, Linnaeus recognized *Dalibarda* as a valid genus, distinct from *Rubus*. In the second, he reduced *Dalibarda* and changes *D. repens* L. to *Rubus Dali-*

Digitized by Google

barda L. Necker must, therefore, refer to this edition or the third, which is practically identical, or else to some edition of the Systema, perhaps the 12th or the 13th. In either case the problem becomes much more complicated, because in all of these there are not less than four species of *Rubus* with simple leaves. In the second edition of Species Plantarum, *Rubus moluccanus* (which is not a *Rubacer*) is the first mentioned of these. Should not this according to Dr. Greene's own interpretation * be the type of *Bossekia?* The zoölogists often take as the type the European species best known at the time. In this case it would be *R. Chamaemorus*, which was certainly intended by Necker as a part, at least, of his *Bossekia*. As far as the facts now are known, no rule, as far as I can see, will make *Rubus odoratus* the type.

According to the "American Code," *Bossekia* is not properly published, for no type is specified, nor is it identifiable with any definite published species. President Jordan probably expressed the opinion of the majority of the American zoölogists, when he made the following statement: "A generic name should have no standing if resting on definition alone, nor until associated with some definite species." The majority of the botanists of this country evidently hold the same opinion.

Under the circumstances, I can not accept *Bossekia* in place of *Rubacer*, until Dr. Greene or someone else proves definitely that *Rubus odoratus* was the actual type of Necker's genus *Bossekia*.

NEW YORK BOTANICAL GARDEN,
June, 1906.

TEREBINTHUS MACDOUGALI, A NEW SHRUB FROM LOWER CALIFORNIA†

BY J. N. ROSE

The name *Bursera* L. (1762) is not only a homonyn of *Bursera* Loef. (1758), but is a true synonym of both *Elaphrium* Jacq. (1760) and of *Terebinthus* P. Browne (1756). The latter as the earliest published name is here taken up.

* See Pittonia 4: 104. Ja 1900.

† Published by permission of the Secretary of the Smithsonian Institution.

Digitized by Google

Terebinthus Macdougali Rose sp. nov.

A shrub or small tree: bark of one- and two-years old branches reddish, smooth: leaves clustered at the ends of short spurs, either simple or with 3 to 5 leaflets; rachis of compound leaves winged; petioles short; blade oblong, obtuse, 1 to 1.5 cm. long, crenately toothed, with very short dense pubescence on both surfaces: male flowers borne in short racemes or panicles; sepals and petals densely pubescent; female flowers solitary; peduncles very short, 4 mm. long, glabrous. [FIG. 5.]

A species common on the hills near the head of the Gulf of California, first collected by Dr. E. Palmer in 1870 and recently

FIG. 5. *Terebinthus Macdougali* Rose. A photograph taken at San Felipe Bay, Lower California, February, 1904.

collected in the same region by Dr. D. T. MacDougal, after whom I take great pleasure in naming it.

It has heretofore been confused with *B. Hindsiana* of southern Lower California, from which, however, it seems quite distinct. It differs in its more vigorous branches, reddish instead of blackish bark on one- and two-years old shoots, somewhat thicker leaves and leaflets, shorter and denser pubescence on leaves, more pubescent petals, etc.

Digitized by Google

Specimens examined:

LOWER CALIFORNIA: Exact locality not given but doubtless near the mouth of the Colorado River, Dr. E. Palmer (type); San Felipe Bay, Dr. D. T. MacDougal, February, 1904 and E. A. Goldman, June 20, 1905 (*no. 1164*); Los Angeles Bay, Dr. Palmer, 1887 (*no. 572*).

SONORA: Hills near the Gulf of California, C. G. Pringle, August 20, 1884.

The type specimen is preserved in the U. S. National Herbarium.

U. S. NATIONAL MUSEUM.

NOTES ON SOUTHERN VIOLETS—I

BY HOMER DOLIVER HOUSE

The fact that a mere superficial resemblance between two species in the field can be accentuated in dried specimens to an extent which has prevented their separation cannot be better illustrated than in the case of the following new species remarkably distinct from *Viola pedata* in the field, but losing its characteristics to a large extent when pressed and dried.

Viola redunca sp. nov.

Related to *V. pedata* and *V. ampliata*. Plants solitary, rarely clustered: rootstock short, 6–15 mm. thick: earliest leaves short-petioled, reniform-ovate in outline, lobed or divided into 3–5 blunt, wedge-shaped segments, later leaves with petioles 6–15 cm. long, blades dark-green above, paler beneath, divided into 5–9 linear-lanceolate, acute segments, these usually with one or two teeth near the ends, the outermost segments of the mature blades spreading nearly at right angles to the petiole, margins minutely ciliate: sepals linear-lanceolate, acute or acuminate, strongly truncate at the base, 13–15 mm. long, the lateral ones 3 mm. broad or more: corolla 3–4.5 cm. broad, lavender-blue, the lateral pair of petals slightly smaller than the others, the upper pair turned back to back; spur of the lower petal 5 mm. long or more, curved strongly upward and projecting between the two upper petals, tinged with purple, flattened laterally but rounded in outline at the end: capsules 8–9 mm. long; seeds pale-brown

Digitized by Google

Type collected by the writer at Clemson College, Oconee Co., South Carolina, March 22, 1906 (*no. 1720*).

Apparently the commonest violet of the southern Piedmont region, and observed in great abundance throughout western South Carolina and adjacent Georgia, extending to an altitude of nearly 5,000 feet in northeastern Georgia.

Viola redunca is distinguished from *V. ampliata* Greene by its smaller size, the spur curved straight upward at the end and laterally flattened and the upper pair of petals turned back to back; from *V. pedata* L. (concolorous form) by its remarkable spur and peculiar color of the corolla. My attention was first drawn to the species by the uniform difference in the color of the corolla from that of *Viola pedata* which I have seen about the city of Washington.

Viola glaberrima (Ging.)

V. hastata var. *glaberrima* Ging. in DC. Prodr. **1**: 300. 1824.

V. tripartita glaberrima Harper, Bull. Torrey Club **27**: 337. 1900.

Type locality: "In sylvis et collibus Carolinae septentrionalis."

Viola tripartita frequently has entire leaves which gives the plant the appearance of *V. glaberrima* and especially is this true in dried specimens.

V. glaberrima has broader leaves than any entire-leaved forms of *V. tripartita*, and they are less pubescent, deeper and more glossy green, usually glabrous, with stronger, more regularly toothed margins.

In my observations during the past spring and early summer upon many hundreds of individuals, I have not yet found the two species growing intermingled or showing any intermediate forms and it seems that *Viola glaberrima* has as much right to specific recognition as has *V. scabriuscula* of the north.

Viola Walteri nom. nov.

V. canina Walt. Fl. Car. 219. 1788. Not L.

V. Muhlenbergii var. *multicaulis* T. & G. Fl. N. Am. **1**: 140. 1838. "Rocks near Kentucky River, *Short!*"

Digitized by Google

V. canina var. *multicaulis* A. Gray, Bot. Gaz. **11** : 292. 1886.
V. multicaulis Britton, Mem. Torrey Club **5** : 227. 1894.
Not *V. multicaulis* Jord. Pugill. Pl. Nouv. 15. 1852.

Michaux, describing *Viola debilis* (Fl. Bor.-Am. **2** : 150. 1803), questionably assigns Walter's *V. canina* to his species, but *V. debilis* is described as having "floribus albis ; longe pedunculatis," and is generally referred to *V. striata* Ait., while Walter's *V. canina* is quite certainly the species under consideration.

Some extensions of range

Viola rotundifolia Michx. (to the mountains of North Carolina and Tennessee, *fide* Small). Very abundant at Tomassee Knob, Mountain Rest and Russells, Oconee Co., South Carolina, and on densely wooded slopes about Rabun Bald in Rabun Co., Georgia.

Viola canadensis L. (to North Carolina, *fide* Small). Occasionally found on damp shady ravine-sides and slopes looking northward about Rabun Bald in northeastern Georgia, and abundant on the north side of Tomassee Knob, Oconee Co., South Carolina.

Clemson College, S. C.

REVIEWS

Knuth's Handbook of Flower Pollination *

Hermann Müller's, "The Fertilization of Flowers," upon which the present encyclopedic work is based, was published thirty-three years ago, and its English translation, by Thompson, ten years later. That book has been out of print for several years, and subsequent investigations have made desirable, not a new edition of the older publication, but an entirely new work. This was undertaken by Dr. Knuth, whose extensive researches in the subject for over fourteen years peculiarly fitted him for the task.

The work is dedicated to Christian Konrad Sprengel and Dr.

* Knuth, Dr. Paul. Handbook of Flower Pollination, based upon Hermann Müller's work, "The Fertilization of Flowers by Insects." Translated by J. R. Ainsworth Davis. Vol. I, pp. xix + 382, *f. 1–81*. Oxford : At the Clarendon Press. 1906.

Digitized by Google

Hermann Müller, the two greatest masters of the science of flower pollination. The present volume contains, as a frontispiece, a likeness of Kölreuter, the pioneer in observations on the pollination of flowers.

Three volumes are planned, as follows: Vol. I. Introduction and literature; Vol. II. The observations in flower pollination hitherto made in Europe and in the Arctic regions; Vol. III. Observations in flower pollination made outside of Europe. It is announced that volume II is now in press. This "Handbook" is of uniform binding with Pfeffer's Physiology of Plants and Goebel's "Organography."

Volume I gives a short historical review of the subject, from Kölreuter to the present. This occupies 211 of the 382 pages. The treatment here is general, and deals with the structure of flowers and insects in relation to pollination. The remainder of the book is an exhaustive bibliography down to January 1, 1906. Here the names of American authors occupy a conspicuous place.

There is a "Preparatory Note to the English Edition" by I[saac] B[ayley] B[alfour]. The work is the first one of importance on the subject in which the modern distinction between the terms pollination and fertilization is recognized. Unlike the numerous "popular" presentations of the subject, the illustrations are none of them colored, but do, however, possess the merit of really illustrating the text. There is no index, and while one would have been very desirable, the character of the text makes the loss felt less than is the case in most books, and its need is fairly well supplied by a rather full table of contents.

In any recent writings on pollination one naturally looks for either confirmation or refutation of Plateau's iconoclastic contributions, which challenged the virtually universally accepted theory of the ecological rôle of color in flowers. A "Supplement to the Introduction" contains, besides a biographical note on Kölreuter, a critical examination of Plateau's observations and theories. Their importance is minimized by Knuth, who disagrees with Plateau fundamentally, and closes his critique with the statement of the following law:

Digitized by Google

"Attraction from considerable distances is certainly effected for the most part by the odour of the flowers, which fills the air as with invisible clouds, and indicates the direction for flight; when the insects approach nearer (1–2 m.), the colours of flowers undertake the task of attracting them further, and when they finally settle, the lines and points long since described by Sprengel under the name of 'Saftmal' (*i. e.*, sap-mark) serve to point out the way to the nectar."

C. STUART GAGER.

FIELD MEETINGS OF THE CLUB

The fifth forestry lesson was given in Van Cortlandt Park on June 2. Twelve persons were present, with Dr. Marshall A. Howe as instructor and guide. The general subject of the lesson was "Reproduction of the Forest." Attention was directed to the extensive and often wasteful cutting of the American forests and the great economic importance of the replacement of the forests was emphasized. Natural and artificial methods of forest reproduction were discussed, as was also the rapidity of growth of such trees as the white pine, the hardy catalpa, and the black locust, which, even when grown from the seed, may yield one or more crops of marketable timber within an ordinary lifetime. The temperature of the air, the amount of moisture in the soil, and other less important conditions affecting the prevalence of certain trees were spoken of. The fact that seedlings of certain trees cannot live and thrive in the shade of their parents was mentioned as one of the chief causes of the rotation or succession of species that is sometimes observed in forests. Young beeches and maples are so tolerant of shade that they commonly succeed older individuals of the same species, and white pine often succeeds itself when the stand is not too dense.

On June 9, the sixth forestry lesson was given at the New York Botanical Garden, with Mr. H. A. Gleason as instructor and guide. The hemlock forest and other wooded portions of Bronx Park were visited. The character of the forest floor, the soil and light conditions, plant associations, and natural pruning were the special subjects for observation and discussion.

Digitized by Google

The excursion announced for June 16, to Alpine, New Jersey, with Dr. P. A. Rydberg as guide, was not made, the weather conditions being very unfavorable.

The excursion of June 23 was to Montclair Heights, N. J., under the guidance of Dr. Rusby. The weather was very threatening and but five persons attended. The storm broke almost immediately after the party left the train, but not until after a number of interesting plants had been collected. *Leucothoë* was found in a wet pocket in the trap rock, but was past flowering. The development of plants of *Geranium carolinianum* L., growing under different conditions of soil and exposure, was found very interesting. Careful observations were made of the fruiting stage of *Viola alsophila* Greene. The plant formed a dense growth, to the exclusion of all else, in large patches on wet ground, reaching a height of eight to ten inches. Its habit at this time is very erect, and a striking peculiarity is the perfectly horizontal position of the leaf blades. The distinguishing characteristics of these blades are the peculiar sparse hairiness of the upper surface and the satiny sheen of the glabrous lower surface. The cleistogamous fruits were scarcely full-grown, and their position and form and the curvature of the peduncles showed much variation, but they were for the most part sharply recurved, or almost reflexed, which is probably the typical mature condition. This plant is probably the real *V. blanda* Willd., as indicated by the original figure.

On June 30, the excursion was to West Orange, N. J., under the leadership of Mr. Percy Wilson.

The meeting of July 2 to 9, in connection with the Botanical Symposium was at Mountain Lodge, Little Moose Lake, the seventeen persons in attendance being guests of the Adirondack League Club. The flora of the region has been attentively studied for some years past by several members of that Club, especially by Mrs. Annie Morrill Smith, who has published a preliminary list of the plants. The work of the visiting botanists on this occasion will perhaps add a score or more of species to this list. The method of work was to make extended excursions during the day, and exhibit the collections and discuss the results

Digitized by Google

at evening meetings, held in a large room over the boat-house. All were heartily grateful to their hosts for the care taken for their comfort and for the success of their work. Mrs. Smith was indefatigable in arranging and providing for the party. Interest centered chiefly, perhaps, in the violets, the ferns and the edible fruits. The violets were here, as everywhere, very puzzling, and proved that we have not even yet a basis for properly understanding the genus. *Viola renifolia* Gray was the predominant species, and was observed closely. It is quite evident that it is the northern ally of *V. alsophila* Greene, the differences between the two being slight, although genuinely specific. The most conspicuous and constant is the hairy lower leaf-surfaces and petioles of *V. renifolia*. The strawberries came in for special attention, all the eastern species except the red form of *Fragaria vesca* and *F. canadensis* being collected. The white-fruited *F. vesca* was very markedly later than any other. *Fragaria Terrae-novae* Rydberg was collected on the summit of Burnt Mountain on July 3 with ripe fruit. Dr. Rydberg was present and identified the species. The plants grow in company with *F. virginiana* Duch. Other plants growing with it were *Rubus americanus* (Pers.) Britt., with fine ripe fruit, *R. hispidus* L. in full bloom, a species of *Gyrostachys* in a young state, perhaps *G. plantaginea* (Raf.) Britton, all in damp pockets in crevices of the rocky summit. In drier spots, *Polygonum cilinode* Michx. and *Achroanthes unifolia* (Michx.) Raf. were collected. On the shores of Little Moose Lake grow two very different forms of *Vaccinium canadense* Richards. One is the ordinary very pubescent form. The other has much smaller, narrower and thinner leaves and is much less hairy. The plant is very low, and its branches spread almost perfectly horizontally. This form may well prove distinct. The fruit in both was very young. Other interesting material collected for the economic museum of the New York Botanical Garden included *Ribes prostratum* L'Her., with ripe fruit, *R. lacustre* (Pers.) Poir., with immature fruit, *Amelanchier canadensis* (L.) Medic., and the rhizomes of *Calla palustris* L. The many forms of *Amelanchier*, growing together in masses on the lake shores were almost discouraging to one who would find constant specific characters.

Digitized by Google

On Saturday afternoon, July 7, representatives of the Club visited Central Park, New York City, under the guidance of Dr. Edmund B. Southwick, and examined some of the rare trees and shrubs there under cultivation.

The field meeting of July 14 was devoted especially to a study of the mosses, Mr. R. S. Williams acting as guide and instructor. Members of the party met at the Museum of the New York Botanical Garden and walked thence to Van Cortlandt Park, where various types of mosses were observed.

The excursion planned for July 21, to Little Falls, N. J., was prevented by the persistently stormy character of the day.

On July 28, members of the Club enjoyed the hospitality of Professor L. M. Underwood at Redding, Connecticut, where numerous gorges and wooded ravines offer an interesting flora. Flowering or fruiting specimens representing thirty-seven natural families of seed-plants were collected.

The field meeting of August 4 was an excursion especially for marine algae. Hunter's Island, which is on Long Island Sound within the limits of New York City, was visited, with Dr. Marshall A. Howe as guide. *Gracilaria confervoides* (L.) Grev. was among the rare and more interesting species found.

NEWS ITEMS

Dr. J. N. Rose, associate curator of the Division of Plants, U. S. National Museum, left Washington August 1, to continue his botanical explorations in Mexico.

Professor C. F. Baker, botanist of the Estación Agronómica Central de Cuba, has recently spent a month or more in the United States, returning to Cuba on August 15.

Homer D. House, associate professor of botany and bacteriology in Clemson College, was engaged during the month of July in holding farmers' institutes in various parts of South Carolina.

Dr. Augustine Henry, well known by his travels and botanical collections in China and Formosa, arrived in New York on the *Majestic*, August 3, for a tour of the United States and Canada.

Digitized by Google

Mr. Norman Taylor, of the New York Botanical Garden, sailed on August 18 for Cuba, where he will spend several weeks among the mountains near Santiago in company with Professor B. E. Fernow, of Ithaca, N. Y.

Guy West Wilson (B.S., DePauw University, 1902; A.M., 1903; M.S., Purdue University, 1906), and Ralph Curtiss Benedict (Ph.B., Syracuse University, 1906) have been appointed assistants at the New York Botanical Garden.

Professor F. S. Earle has retired from the directorship of the Estación Agronómica Central de Cuba, a post which he had held since the organization of the institution in the spring of 1904. He will remain for the present on a fruit farm owned by him near Herradura in the Province of Pinar del Rio.

William Mitten, well known as a bryologist, died at Hurstpierpoint, Sussex, England, on July 20, 1906. His name was familiar to American students of the mosses especially through his "Bryology of the Survey of the 49th Parallel of Latitude" and by his "Musci Austro-Americani," a volume of 659 pages descriptive of the mosses of South America.

Henry Allan Gleason (Ph.D., Columbia University, 1906) has been appointed instructor in botany in the University of Illinois, where he will have classes in general morphology and systematic botany and will also have charge of the herbarium. The University has recently purchased the botanical collections of F. E. MacDonald, of Peoria, Illinois, containing about 12,000 sheets of spermatophytes.

Dr. D. T. MacDougal, director of the department of botanical research of the Carnegie Institution of Washington, left New York on August 18 for the City of Mexico. He will devote about six weeks to a study of storage organs of desert plants in the Tehuacan region and to collecting Cactaceae there in company with Dr. J. N. Rose, after which he will return to the Desert Botanical Laboratory at Tucson, Arizona.

Dr. William A. Murrill, first assistant of the staff of the New York Botanical Garden, returned to New York on August 18

Digitized by Google

from a trip to Europe. Visits were made to the mycologist Bresadola in Trient and to museums and botanical gardens in Paris, Berlin, Copenhagen, Upsala, Stockholm, Leyden, Amsterdam, and Kew. From July 31 to August 2 he was in attendance upon the International Conference on Hybridization and Plant-Breeding, held in London under the auspices of the Royal Horticultural Society.

The two Walker prizes offered annually by the Boston Society of Natural History for the best memoirs on specially designated subjects connected with natural history are offered for 1907 for memoirs on six subjects, three of which are botanical, as follows: "(1) The structure and affinities of some fossil plant or group of fossil plants. (2) The development of the gametophytes in any little-known representative of the Coniferales. (3) The anatomy and development of some order or group of the angiosperms." The first prize is sixty dollars, which, at the discretion of the committee, may be increased to one hundred dollars, for a memoir of marked merit. Competition is not restricted but is open to all. The manuscript of memoirs submitted must be in the hands of the secretary on or before April 1, 1907. Further particulars may be had by addressing Glover M. Allen, Secretary, Boston Society of Natural History, Boston, Mass.

Digitized by Google

Digitized by Google

OTHER PUBLICATIONS

OF THE

TORREY BOTANICAL CLUB

---

(1) BULLETIN

A monthly journal devoted to general botany, established 1870. Vol. 32, published in 1905, contained 691 pages of text and 29 full-page plates. Price $3.00 per annum. For Europe, 14 shillings. Dulau & Co., 37 Soho Square, London, are agents for England.

Of former volumes, only 24–32 can be supplied entire; certain numbers of other volumes are available, but the entire stock of some numbers has been reserved for the completion of sets. Vols. 24–27 are furnished at the published price of two dollars each; Vols. 28–32, three dollars each.

Single copies (30 cts.) will be furnished only when not breaking complete volumes.

(2) MEMOIRS

The MEMOIRS, established 1889, are published at irregular intervals. Volumes 1–11 and 13 are now completed and Nos. 1 and 2 of Vol. 12 have been issued. The subscription price is fixed at $3.00 per volume in advance. The numbers can also be purchased singly. A list of titles of the individual papers and of prices will be furnished on application.

(3) **The Preliminary Catalogue of Anthophyta and Pteridophyta** reported as growing within one hundred miles of New York, 1888. Price, $1.00.

Correspondence relating to the above publications should be addressed to

THE TORREY BOTANICAL CLUB
Columbia University
NEW YORK CITY

Digitized by Google

Digitized by Google

Digitized by Google

U. HOLZER
BINDER
BOSTON MASS.

Digitized by Google

Digitized by Google